



Annual Report 2018

MATER MISERICORDIAE UNIVERSITY HOSPITAL



Working in partnership with

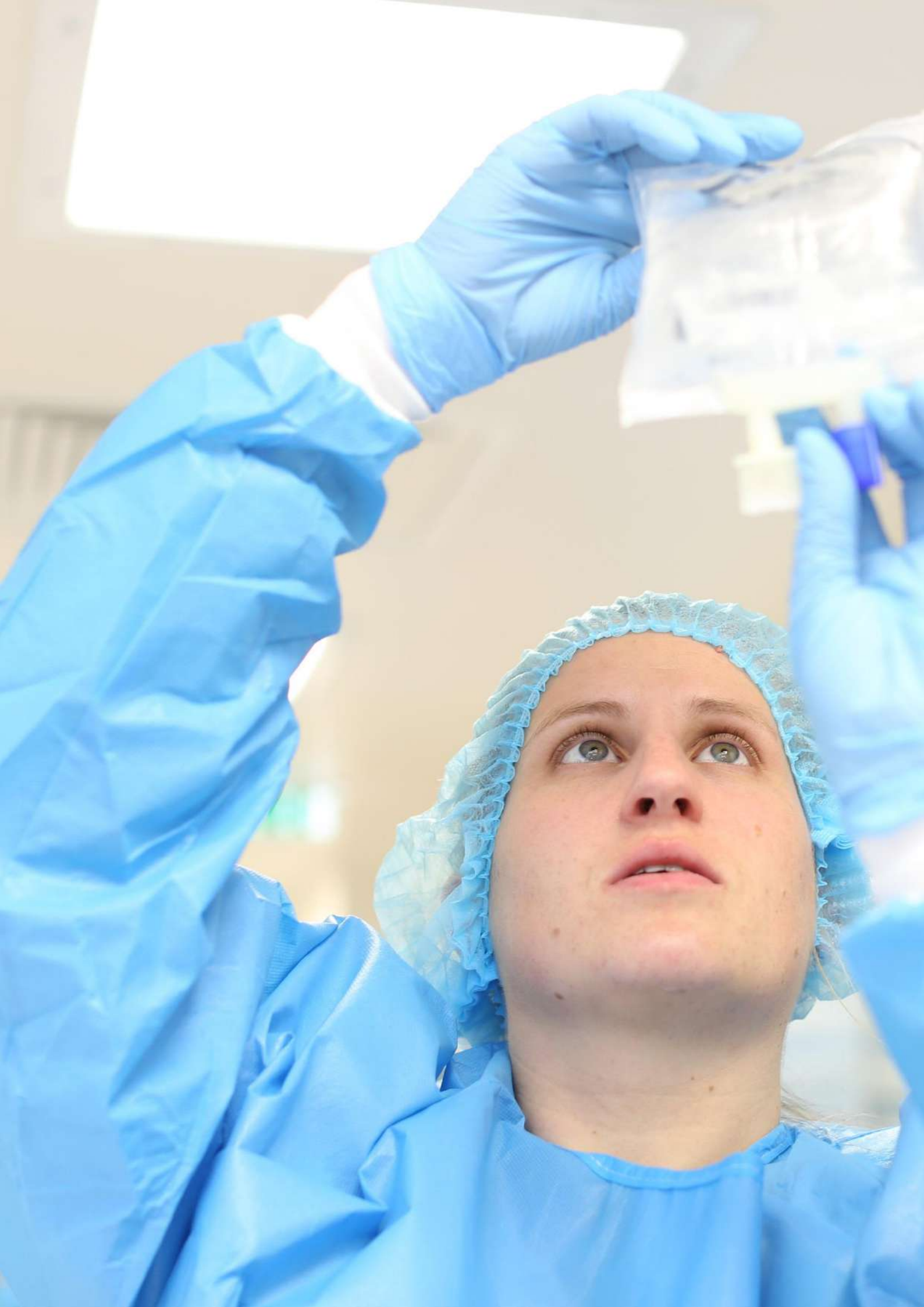


Building a
Better Health
Service



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About Us

Mater Misericordiae University Hospital

The Mater Misericordiae University Hospital is a level 4 teaching hospital based in Dublin's north inner city. The hospital was opened in 1861 by the Sisters of Mercy. The Mater is part of the Ireland East Hospital Group and provides a range of frontline and specialist services on a regional and national level.

The Mater is a major cardiac centre, cancer centre and is home to a range of quaternary services listed below. While the hospital has been synonymous with cardiology it also is a major centre for ophthalmology, spinal injuries, cancer and is the national heart and lung transplantation centre.

As a major academic hospital, the Mater has a strong track record of producing high quality research that delivers real and meaningful results to patients. Through our partnerships with our academic partner, University College Dublin (UCD), and other academic institutions, the Mater prioritises research that translates rapidly into patient benefits.

The strong partnership with UCD also enables us to deliver undergraduate and postgraduate education to hundreds of healthcare professionals including nurses, doctors, clinical therapists, radiographers and many more.

Quaternary Services

- ▶ Cardio-thoracic Surgery
- ▶ National Centre for Peritoneal Malignancies
- ▶ Intensive Care Medicine
- ▶ National Centre for Inherited Metabolic Disorders
- ▶ National Centre for Rare Diseases
- ▶ National Centre for Congenital Heart
- ▶ National Centre for Extra Corporeal Life Support
- ▶ National Heart and Lung Transplantation Programme
- ▶ National Isolation Unit
- ▶ National Spinal Injuries Unit
- ▶ National Centre for Pulmonary Hypertension

Our Care at a Glance



82,307

emergency department attendances



221,968

out-patient attendances



213,856

radiological investigations / procedures



2,500+

cancers diagnosed



78%

of elective patients admitted on day of surgery



63,903

day case procedures performed



286

emergency cardiac cath lab procedures



46

transplants performed

Our Mission

The mission of the Mater Misericordiae University Hospital is to care for the sick with compassion and professionalism at all times, to respect the dignity of human life, and to promote excellence, quality and accountability through all our activities.

Our Vision

To be a leader in innovation of specialist services and healthcare transformation with a strong academic and research agenda, demonstrating consistent efficiencies and quality care improvements and delivering excellence in care as perceived by our patients.

Our Values

▶ Excellent reputation

▶ Competent and motivated staff

▶ Education, training and research

▶ Clinical excellence

▶ Positive patient experience

▶ Financial accountability

▶ Partnership

▶ Strategic planning and development

Our care is

▶ Provided in an environment underpinned by our mission and values

▶ Holistic and centred on the needs of each patient

▶ High quality, safe and continuously improving to ensure best care for each individual patient

▶ Innovative and informed by current research using contemporary techniques and technology

▶ Delivered by a team of dedicated, appropriately qualified people who are supported in continuing developing their skills and knowledge

Our Strategic Goals



GOAL 1

Deliver system-wide process improvements in unscheduled and scheduled care

To implement 'whole systems' process improvement in unscheduled and scheduled care, enabled by our Transformation Office, Mater Lean Academy and IT Investment.

GOAL 3

Enhance our education, research and innovation capability and profile

To strengthen our education, research and innovation profile, secure more academic positions, and participate in more directed research through the new Directorate of Education, Research and Innovation.

GOAL 2

Strengthen and promote our specialty services and areas of expertise (our DNA)

To focus on the development of our specialty services (with critical care as the hub) and to promote our expertise and outcomes in these areas to all our stakeholders

GOAL 4

Ensure effective data capture and reporting (clinical audit / HIPE / ABF)

To establish the necessary technology, processes and structures to ensure we are efficient in our data gathering and reporting, stronger at clinical audit and are maximising activity based funding.

GOAL 5**Demonstrate leadership and innovation in patient care delivery models, integrated care and staff wellbeing**

To challenge the status quo and develop new service delivery models and new services that improve the patient experience, patient outcomes and staff wellbeing.

GOAL 6**Implement an EHR system**

To invest in and implement an Electronic Health Record (EHR) system to facilitate clinical practice and to support the wider business environment



Board of Directors

Chairman



Thomas Lynch
Chairman

Executive Members



Prof Padraic MacMathur
Chairman
Medical Executive



Prof Brendan Kinsley
Executive Clinical
Director



Tanya King
Director of Nursing



Caroline Pigott
Director of Finance

Non-Executive Members



Dr Mary Carmel Burke
General Practice
Representative



Sr Margherita Rock
Sister of Mercy



Sr Eugene Nolan
Sister of Mercy



Prof Mary Day
Chief Executive IEHG



Mr Kevin O'Malley
Joint Clinical Director
IEHG



Tony Garry
Company Director



Rod Ensor
Solicitor



David O'Kelly
Advisory Partner
KPMG



Dr Mary McMenamain
Departmental
Lecturer, Oxford



Prof Cecily Kelleher
College Principal



Eilis O'Brien
Comms/Marketing
Director UCD



Michelle Gibbons
Psychologist



Radiographer
Mater Hospital

Radiographer
Mater Hospital

Radiographer
Mater Hospital

CEO Introduction



The Mater Misericordiae University Hospital strives to constantly improve the care we deliver by putting the patient at the centre of all

that we do. In 2018, we reorganised our hospital directorate structure and divided the Cancer and Surgery Directorate into a Surgery Directorate and a Cancer Directorate. This aligns with the Ireland East Hospital Groups creation of a Cancer Clinical Academic Directorate across the Mater and St Vincent's University Hospital but also enables us to bring greater focus to surgical areas that are only partially or not involved in cancer care. As part of the reorganisation we made the significant decision to create a Pharmacy and Medicines Optimisation Directorate with the goal of improving both the quality and safety of medicines we use. As an academic hospital the Mater has always had a major focus on research and education. A strong and vibrant health and medical research component is crucial for improving outcomes for patients. The creation of the Directorate of Education, Research and Innovation last year exemplified the hospital's commitment to research and to providing world-class training for our current and future health professionals. While we are very focused on improving the care we deliver to patients we are also cognisant of the wider environment in which we work, and in July of

last year the Mater and the Carbon and Energy Fund signed Ireland's first Energy Infrastructure Project Agreement. This agreement will reduce the hospital's carbon footprint by approximately 5,000 tonnes annually and cut the hospital's requirement for imported electricity by 77%. This is a milestone agreement for the hospital as healthcare has been identified as one of the biggest energy users in the public sector. Finally, last year we saw more than 220,000 patients through our out-patient service and more than 80,000 attended our Emergency Department. Each year, our staff dedicate themselves to caring for all of our patients, improving their health, wellbeing and outcomes. I would like to thank them, for their dedication and commitment. I was delighted to see these efforts being recognised in the 2018 Irish Healthcare Awards, where the Departments of Microbiology, Emergency Medicine and Infection Prevention and Control won the Hospital Project of the Year and the Transformation Team won the Hospital Initiative of the Year for Older Persons Care Services. I am proud of what we have achieved in 2018 and do hope you find this report interesting.

Gordon Dunne, Chief Executive

The Year in Review

Irish Healthcare Awards

The annual Irish Healthcare Awards celebrate innovation, excellence and achievement in the Irish health system and recognise projects and individuals that have made a positive contribution to patient care.

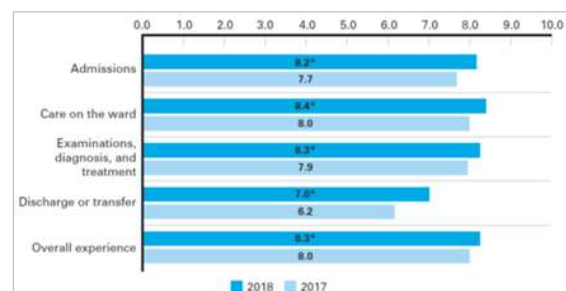
The Awards have become synonymous with everything that is exceptional and progressive in the Irish health service and sees projects entered from all areas of the country and all sectors of the health service. At the 2018 awards the teams from the Mater Hospital were winners in 2 different categories.

► **Hospital Project of the Year**
Mater Misericordiae University Hospital
(Departments of Microbiology,
Emergency Medicine and Infection
Prevention and Control)
In House Influenza Testing

► **Healthcare Initiative: Older Persons Care Services**
Mater Misericordiae University Hospital
OMEGA: Co-Design of Patient Pathway from the Mater Hospital to three rehabilitation sites

National Patient Experience Survey

The National Patient Experience Survey is a nationwide survey that offers patients the opportunity to describe their experiences of public acute healthcare in Ireland. The survey is a partnership between the Health Information and Quality Authority (HIQA), the Health Service Executive (HSE) and the Department of Health. The survey was conducted for the first time in 2017 and repeated in 2018.



Comparison of care stage scores for the Mater Hospital for 2017 and 2018.

**indicates statistically significant difference between 2017 and 2018*

Nationally, 26,752 people were invited to participate in the second National Patient Experience Survey in 2018. In total, 13,404 completed the survey, with 662 patients from the Mater Misericordiae University Hospital taking part. Significant improvements were

seen in all major areas compared to 2017 and the hospital has developed a Quality Improvement Plan to address areas identified for improvement.

National College of Art and Design: Innovation and Design Week

Over the course of the week Monday 5th to Friday 9th February, 27 students from the National College of Art and Design (NCAD) and three students for UCD School of Medicine turned the old High Dependency Unit space in the Misericordiae wing of the hospital into a studio for the 3rd annual NCAD Innovation and Design Week. Students were split into teams and received their design brief on Monday morning – with challenges ranging from hospital gown redesign to helping patients with a fear of MRI scanners.



The students then spent the week working alongside hospital staff and patients to develop and test solutions to these design challenges. The final solutions were presented at an open forum in the Catherine McAuley lecture theatre on the Friday afternoon. This fun and inspiring event, brings together the expertise of the hospital staff and the creativity and design skill of the students.

2018 was the first year that the project involved medical students which brought very

positive feedback from all involved. Based on the feedback and the output it is hoped to involve students from multiple disciplines in 2019. The continued support of the students and staff from both the National College of Art and Design and the Mater Hospital has led to the development of a number of creative and meaningful solutions for patients.

Mission Awareness Conference

The theme of May's Mission Awareness Conference was homelessness, which has become an increasing problem in our society in recent years. Homelessness harms an individual's health. The Mater Hospital has seen a significant increase in homeless people using hospital services, often through the emergency department, to manage their health issues. The conference's focus was on how the health and community services can collaborate to develop an effective response to address the health needs of homeless peoples and reduce the impact of the homelessness crisis on secondary care services.

The conference was opened by Minister Catherine Byrne TD, Minister of State at the Department of Health with responsibility for Health Promotion and the National Drugs Strategy. The Minister spoke passionately about the multifactorial issues affecting the homeless and articulated her commitment to continue to seek solutions and advocate on behalf of the homeless and vulnerable in our society.

In the afternoon attendees visited four areas; Emergency Department, Carney Unit/Oncology Day Ward, National Spinal Injuries Unit and the Cardiovascular Laboratory.

Speakers at the conference included

▶ Dr Nigel Hewitt OBE, Medical Director, Pathway

▶ Fr Peter McVerry, Founder of the Peter McVerry Trust

▶ Fiona O'Reilly, CEO Safetynet Primary Care

▶ Dr Cliona O'Ceallaigh, Consultant in Social Inclusion, St James' Hospital

▶ Dr Austin O'Carroll, General Practitioner

▶ Jessica Kenny, Homeless Outreach Nurse Liaison, Mater Hospital

▶ Paul, a service user who talked about his experience of homelessness

In addition to the lectures and discussion, attendees were brought on board the Mobile Health Unit to experience the service delivered to the homeless nightly in Dublin. This vital service seeks out and treats homeless people who do not access mainstream health services.

Hospital Knowledge Transfer Office

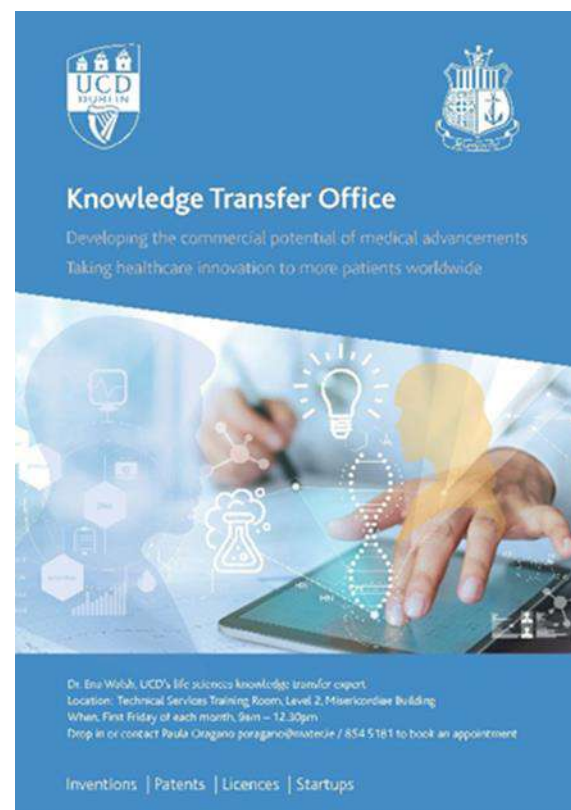
Also in May 2018 the Mater Misericordiae University Hospital, St Vincent's University Hospital and University College Dublin established Ireland's first hospital Knowledge Transfer (KT) office.

The establishment of the office supports the development of the commercial potential of the research outputs emerging from both hospitals and seeks to extend the reach of their medical advancements to a greater number of patients worldwide. The expertise of the KT office will protect any resulting

intellectual property (IP), assess commercial potential, and where appropriate licence this IP to life science companies or create new start-up companies to bring the innovations to market.

The KT office is led by Dr Ena Walsh, UCD's life sciences knowledge transfer expert, who will provide a wealth of resources and advice to clinicians to enable the market potential of their innovations to be fully realised.

The creation of UCD's KT Office at the Mater and St Vincent's will provide robust support structures for clinicians in revealing the true potential of these innovations and increasing patient access to innovative healthcare.



The new office will accompany the ongoing quality health research that is rooted within several centres at both hospitals, including the UCD Clinical Research Centre (CRC) which sits across both the Mater and St. Vincent's, the Education and Research Centre at St.

Vincent's and the Clinical Trials Research Unit, at the Mater.

Energy Infrastructure Project: Carbon Energy Fund Ireland and the Mater Hospital

The Mater Misericordiae University Hospital and The Carbon and Energy Fund (CEF) Ireland announced in July 2018 the signing of its first Energy Infrastructure Project Agreement in Ireland. The 15-year Energy Infrastructure Project Agreement will reduce the hospital's carbon footprint by approximately 5,000 tonnes annually, cut imported electricity from the national grid by 77%, and deliver €1.6 million in guaranteed energy and operational savings year on year.



Window replacement programme

Healthcare is one of the biggest users of energy in the public sector and its energy saving potential has been identified in the Public Sector Energy Efficiency Strategy, which was published in 2017. The Mater project allows the hospital to invest in modern energy-efficient technology and ensures the hospital will exceed the goal set for publicly-funded bodies thereby supporting Ireland's national and EU targets on energy efficiency for 2020. The savings provided by this project will allow the hospital to provide upgraded facilities and infrastructure across the

campus, for the benefit of patients, staff and visitors.

Pharmacy and Medicines Optimisation Directorate

As part of the hospital's Strategic Goal 2, *Strengthen and Promote our Specialty Services and Areas of Expertise* (Strategic Plan 2018-2020) the hospital has decided to establish and develop a Pharmacy and Medicines Optimisation Directorate (PAMO). Medicines Optimisation is defined as a person-centred approach to safe and effective medicines use, to ensure people obtain the best possible outcomes from their medicines. The PAMO Directorate vision and strategy aims are to

▶ improve the quality of medicines use

▶ improve the safety of medicines use

▶ optimise resources to do so

The new Pharmacy and Medicines Optimisation Directorate is a cross organisational directorate that will work in collaboration with the Mater Hospital's directorate structure to achieve these goals. Professor Ciarán Meegan, Head of Pharmacy Services, has been appointed as the Clinical Directorate Lead and Director of Strategy, and Jennifer Brown, Pharmacy Head of Operations has been appointed the Clinical Director of Operations, for the new directorate.

Culture Night 2018

The Mater Misericordiae University Hospital opened its doors for the second time to Dublin Culture Night on Friday 21st September following the success of the event last year.

Over 760 staff and members of the public attended the hospital for the event. The evening combined historical and archival information with interactive displays from many departments. The interactive nature of the exhibits captured the imagination of those attending with visitors commentating on how much they enjoyed the experience.

Culture night was part of Mission Awareness Week which also included the opening of the refurbished Pillar Room, the Good Cup of Tea, the Staff Health and Wellbeing Fair, the Opening of the New Family Rooms as well as the Culture Night.



Virtual Fracture Clinic

The Virtual Fracture Clinic (VFC) is a new initiative in the Mater Hospital. The increase in attendance of patients with fractures to the Emergency Department (ED) and Mater Smithfield Clinic, and the subsequent delay in access to the fracture clinic, was the impetus for this project. The goal is to provide patients with an orthopaedic opinion without the need to physically attend the traditional fracture clinic and involves collaboration between the orthopaedic team, emergency consultants, physiotherapy, information technology and the advanced nurse practitioners in the Emergency Department.



The Virtual Fracture Clinic (VFC) allows patients diagnosed with self-limiting stable fractures that are suitable for treatment in removable splints, to be directly discharged from ED / Mater Smithfield with the appropriate treatment and a detailed injury care plan. Subsequently, their x-rays and documented treatment plan are reviewed remotely by an orthopaedic surgeon.

Following review at the VFC the patient is either discharged (with no follow-up or referred for physiotherapy / occupational therapy) or streamlined to the appropriate orthopaedic specialist. A contact e-mail address is given to the patient for direct access to the orthopaedic service for any queries or concerns. The pilot project in July and August, confirmed the types of fractures suitable for referral to the VFC and facilitated standardisation of injury information leaflets. A total of 299 patients were referred to the VFC between June and August 2018 with a 33% reduction in referrals to the fracture clinic compared to 2017.

The Pillar Centre for Transformative Healthcare

On the 9th November the Pillar Centre for Transformative Healthcare was officially launched in the Mater Misericordiae University Hospital.

The new centre complements existing educational facilities within the hospital and in UCD by providing a flexible, interdisciplinary educational space, located within the hospital environment. The centre focuses on supporting practical skills training, simulation training and team-based, interdisciplinary learning.



Opening of the Pillar Centre for Transformative Healthcare

The Pillar Centre for Transformative Healthcare is situated in the old ICU on level 3 of the Misericordiae wing and has been completely refurbished for this purpose, with the capacity to facilitate up to 400 users over five teaching rooms.

Compassion Awards

At the Mater Hospital, we believe that every staff member is key to providing a kind, compassionate and caring service to all patients and their families. The Compassion Awards were set up to recognise and acknowledge the great work and outstanding care provided by our staff every day in the hospital and to recognise staff members who demonstrate the following

- ▶ Dedication and effort above and beyond the call of duty

- ▶ Going the extra mile in helping patients, visitors and colleagues

- ▶ Displaying a positive, friendly, caring, courteous, and professional attitude when dealing patients, visitors and colleagues

- ▶ Honouring the Mater Hospital's motto *Maintain an attitude of tenderness, empathy and respect*



Winner David Nethaway, (HCA in St. Vincent's Ward) with Siobhan Brady (external adjudicator)

“

This year we received a total of 120 nominations from across all disciplines within the hospital. The award ceremony took place in the Freeman Auditorium.

”

Patient Centred Care

Quality and Patient Safety

The Mater Misericordiae University Hospital continues to place quality, safety and the experience of patients at the forefront of everything that we do. Our ambition is to be the safest hospital in Ireland, and we are committed to continuous quality improvement to ensure that we deliver the best care to patients in a caring and compassionate manner. Quality and patient safety remain our number one priority.

▶ Patient Outcomes

▶ Patient Safety

▶ Patient Experience

Patient Outcomes

The guiding principle at the Mater Hospital is to continuously improve the quality of care for our patients by providing world class patient centric care across all clinical areas. Our goal of putting our patients first and always providing safe and effective care is achieved by our continued focus on safe, effective, evidence-based care for all patients. We continuously measure outcomes and monitor our performance to support the

delivery of safe, effective, quality health care. Clinical audit forms an integral part of the clinical governance framework through which the hospital is accountable for continually improving the quality of services and safeguarding high standards of care.

Clinical audit is a quality improvement process that seeks to improve patient care and outcomes through systematic measurement against explicit criteria and the implementation of any necessary change.

The Mater is also part of wider national initiatives to improve the quality of care delivered and is part of several large scale national clinical audits in the following areas

▶ National Audit of Hospital Mortality

▶ National Cancer Control Programme, Rapid Access Clinic Reviews

▶ Irish Hip Fracture Database

▶ National Stroke Register

▶ Major Trauma Audit

▶ National ICU Audit

▶ National Quality Improvement Programmes (Endoscopy, Histology and Radiology)

National Audit of Hospital Mortality (NAHM)

The National Office of Clinical Audit (NOCA) was established in 2012 to create sustainable clinical audit programmes at a national level. Since it began reporting at hospital level in 2016, NOCA and the participating hospitals have adopted a transparent approach, in order to promote improved data quality and patient outcomes. The NAHM report focuses on data analysis to improve the quality of care that is delivered at a hospital level. Hospitals share their data and experiences of learning and improving from this audit.

All hospitals receive quarterly updates that they use on an on-going basis to monitor their expected mortality ranges and to trigger prompt investigation regarding areas of concern. The National Audit of Hospital Mortality for 2017 was released in November 2018 and presents an analysis of hospital mortality across six key diagnoses

▶ acute myocardial infarction (AMI)

▶ heart failure

▶ ischaemic stroke
▶ haemorrhagic stroke

▶ chronic obstructive pulmonary disease (COPD)

▶ pneumonia

NAHM Admissions Mater Hospital 2016-2017

	2016	2017
AMI	450	514
Heart Failure	268	275
Ischaemic Stroke	308	284
Haemorrhagic Stroke	207	216
COPD	793	805
Pneumonia	617	721

National Audit of Hospital Mortality Admissions 2016-2017

The audit uses a standardised mortality ratio (SMR) to calculate mortality trends. The SMR is a calculation of the number of patients that died within a hospital compared to the number that were expected to die when the SMR factors are taken into account. The SMR factors are

▶ age

▶ gender

▶ co-morbidities (other existing conditions)

▶ type of admission (emergency/elective)

▶ source of admission (home, nursing home etc)

▶ number of emergency admissions (previous 12 months)

▶ proxy level of deprivation (medical card)

▶ palliative care

See Appendix 1 for detailed mortality and SMR data by diagnosis.

Over the last two decades, in-hospital mortality patterns have been used internationally as one indicator of the quality of care. Several broadly similar methods have evolved, and the standardised mortality ratio (SMR) is the most commonly used approach for exploring hospital mortality patterns within a country.

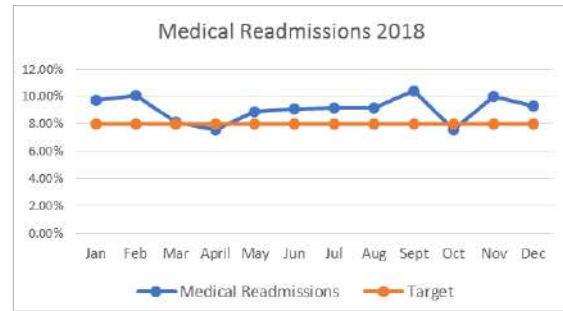
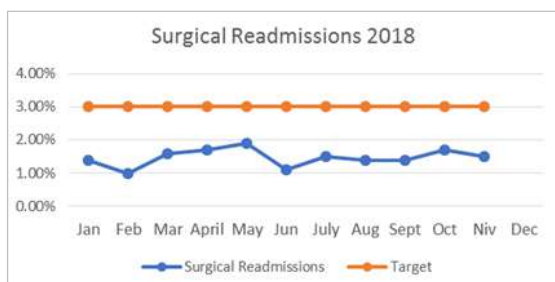
The National Audit found that the Mater Hospital was within the expected range for Standardised Mortality Ratio for all six diagnoses areas. While this reflects the quality of care at the Mater, the hospital is using the NAHM data to continuously identify areas for quality improvement in the care we provide to patients.

Hospital Readmissions

Hospital readmission rates are an important indicator of patient outcomes and of the healthcare system performance. Low readmission rates in healthcare are regarded as an indicator of effective care and efficient co-ordination of services. International studies and quality-reporting initiatives have shown that 15-25% of people who are discharged from the hospital will be readmitted within 30 days or less, and that many of these readmissions are preventable. The Mater Hospital has set targets for readmissions

▶ 3% for surgical re-admissions

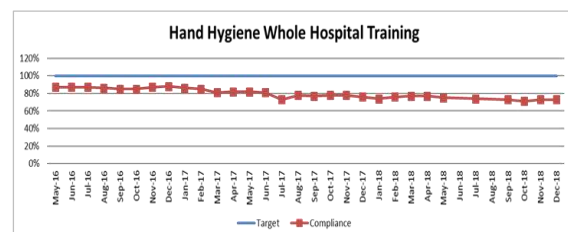
▶ 8.3% for non-surgical re-admissions



Reducing readmissions is a benefit for both the patient and the hospital. The patient benefits from not requiring further hospitalised care, while the hospital benefits from not having to incur the cost and time of treating the patient again.

Patient Safety

Infection Control Hand Hygiene is the single most important factor in preventing the spread of infection. Frequent hand hygiene audits, which incorporate the World Health Organisation's guidelines on the 5 Moments of Hand Hygiene, are carried out at the Mater. Feedback is provided to all clinical areas following each audit and specific staff groups are given education when indicated. Monthly audit results are shared at a Directorate level and the hospital continues to educate and encourage all staff members to ensure hand hygiene compliance throughout the hospital. The HSE has set a target of 90% for hand hygiene.



Infection Rates Hospital-acquired infections (HAIs) are a long-recognised problem affecting the overall quality of health care. The Mater Hospital monitors the level of hospital

acquired infections to provide quality outcome indicators and identify key measures in order to reduce the burden of HAIs. This level of monitoring enables the hospital to

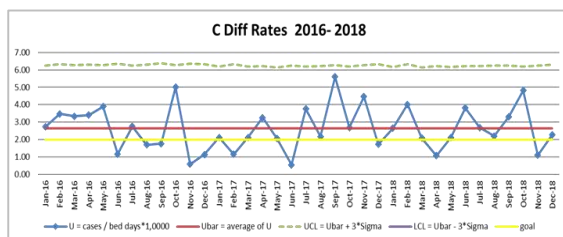
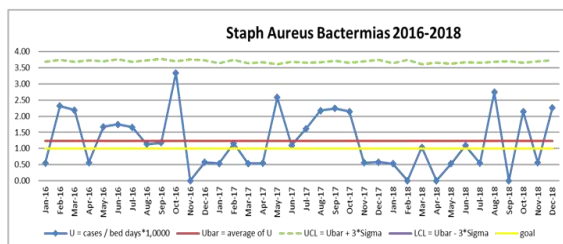
▶ identify trends, including detection of outbreaks

▶ providing early warnings and investigation of infection problems, and subsequent planning and intervention to control

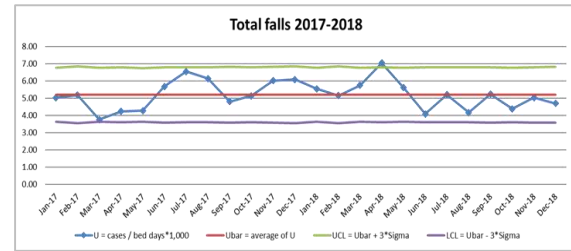
▶ prioritise resource allocation

▶ examine the impact of interventions

▶ gain information on the overall quality of patient care



Falls Falls and fall injuries are the most commonly reported adverse event for adult inpatients. Falls prevention is an important component of care and reduces the requirement for further hospital stay or the need for surgical intervention.



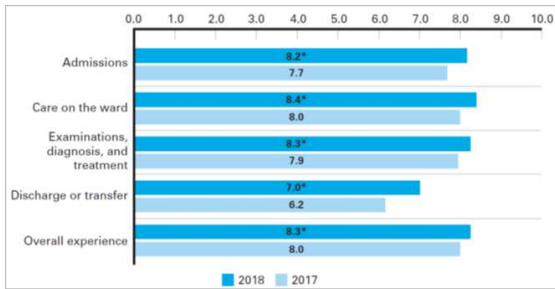
Patient Experience

National Patient Experience Survey The National Patient Experience Survey is a nationwide survey that offers patients the opportunity to describe their experiences of public acute healthcare in Ireland. The survey is a partnership between the Health Information and Quality Authority (HIQA), the Health Service Executive (HSE) and the Department of Health.

The survey was conducted for the first time in 2017 and repeated in 2018.

Nationally, 26,752 people were invited to participate in the second National Patient Experience Survey in 2018. In total, 13,404 completed the survey, with 662 patients from the Mater Misericordiae University Hospital taking part.

Survey Results The majority of patients surveyed from the Mater reported positive experiences in hospital. 87% of participants said they had 'good' or 'very good' overall experiences, compared with 84% nationally. The hospital achieved significantly above-average scores for the admissions, examinations, diagnosis and treatment stages of care, with scores that were similar to the national average for the other stages.



Comparison of care stage scores for the Mater Hospital for 2017 and 2018.

*indicates statistically significant difference between 2017 and 2018

Several areas of good experience were identified. These were areas that were related to participants' overall experiences and where participants gave above-average ratings. For example, patients generally had confidence and trust in the hospital staff treating them, and felt that they were treated with respect and dignity. Patients also received clear answers from nurses to their questions. While significant improvements in patient experience ratings were seen compared with the 2017 survey, with higher ratings across all stages of care, there were also several areas needing improvement. A Quality Improvement Plan has been developed to address the findings of the 2018 survey to help the Mater to continue to improve patients' experiences of care in the hospital.

Voice of the Patient

I was very pleased with the front line services in the A&E. Wonderful care and attention to every detail of my condition (excellent care)

One thing that needs to be improved is the A&E Department, because of overcrowding its very hard for staff to work with so much going on

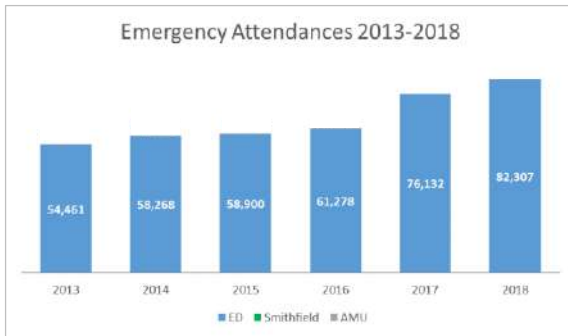
Following triage in ED I was treated very efficiently. Most staff were very friendly and approachable both in ED and on the ward

Access to Care

Emergency Care

Emergency Department: The Mater Hospital provides 24-hour access for patients with a wide variety of complex health problems. The ED service is split in three constituent parts of (1) the main Emergency Department (2) Smithfield Rapid Injury Unit (for less complex care) and (3) the Eye Emergency Department. In 2018, the main ED saw approx. 57,000 patients with Smithfield seeing 13,000 and the Eye ED 12,000.

This makes the service one of the busiest emergency departments in the country. One that covers a wide range of care requirements from minor injuries to acute myocardial infarction and stroke. There was an 8.1% growth in volume of patients attending last year with approximately 30% of those attending triaged as very urgent.



Acute Myocardial Infarction In 2012 the Health Service Executive (HSE) initiated the National Clinical Programme for Acute Coronary Syndrome, initially focussed on treatment of patients with ST elevation myocardial infarction (very serious type of heart attack). Treatment for ST elevation myocardial infarction (STEMI) patients varied nationally depending on distance from a Cardiac Centre offering 24/7 primary Percutaneous Coronary Intervention (PPCI) (direct clot removal), a more effective treatment with less complications but requiring specialised facilities compared with thrombolysis (clot dissolving drug treatment) available in all general hospitals.

“
557 acute myocardial infarctions were treated in the Mater’s cardiac catheterisation labs in 2018
 ”

One of the key elements of the programme was the designation of Primary PCI centres based on criteria: a) two catheter laboratories, b) ability to provide a cardiology roster of 1:5 minimum. There are five designated 24/7 PPCI centres in the country. The Mater Hospital is the designated centre for north Dublin and the North East of the country. All major myocardial infarctions

(heart attacks) out of hours from this catchment area are treated in the Mater.

Stroke

A stroke is a serious, life-threatening medical condition that occurs when the normal blood supply to part of the brain is interrupted or cut off by a blockage or rupture of a blood vessel. Stroke affects 17 million people worldwide each year and it is the third leading cause of death and second leading cause of dementia. In Ireland, HIPE (Hospital Inpatient Enquiry data) recorded a total of 5,392 strokes in 2017.

There are two main types of stroke

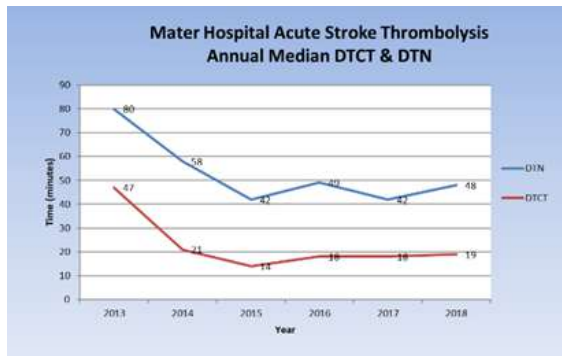
► **Ischaemic** where the blood supply to the brain is stopped due to a blood clot; this accounts for approximately 85% of all strokes

► **Haemorrhagic** where a weakened blood vessel supplying the brain ruptures, causing bleeding into or around the brain. This accounts for the remaining percentage of strokes

“
292 ischaemic and 102 haemorrhagic strokes were admitted to the Mater in 2018
 ”

National and international quality improvement projects have focused on improving acute stroke care by reducing door-to-needle times for patients being treated with tPA (tissue plasminogen activator) to breakdown their clot. The benefits of tPA in patients with acute ischaemic stroke are time-

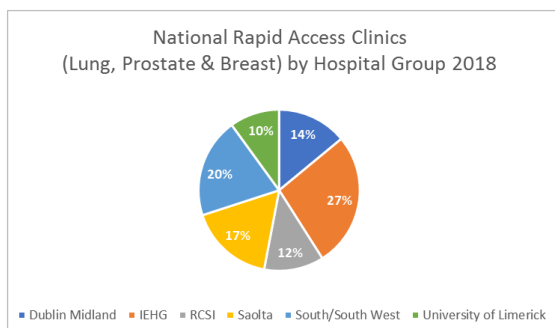
dependant and guidelines recommend a door-to-needle time of 60 minutes or less.



Stroke Door to CT (DTCT) and Door to Needle (DTN) Times 2013-2018

Rapid Access Clinics and OPD

Cancer Rapid Access Clinics The Mater Hospital is part of the Ireland East Hospital Group (IEHG) and with its sister hospital St Vincent’s provides the majority of cancer care for the group. Both hospitals are nationally designated cancer centres (there are 8 nationally) and combined are the largest provider of rapid access cancer services in the country, with approximately 13,000 patients utilising the service in 2018. The IEHG’s Cancer Rapid Access Clinic’s account for approx. 27% of total national volume of patients accessing breast, lung and prostate cancer services.



National Cancer Rapid Access Clinic volumes 2018, by hospital group

In 2018, over 6,300 patients were referred to one of the Rapid Access Clinics (RACs) at the

hospital. Attendances for suspected breast cancer were approximately 5,500 with 60% of patients being triaged as urgent (patients that need to be seen within 2 weeks).

Outpatient Department

Outpatient clinics, at the Mater, involves a holistic and patient-centred approach to the delivery of every aspect of the service. Outpatient clinics have a fundamental function within the hospital as are the venue for many key interactions between patients and our clinical teams.

These interactions are essential to the provision of patient care, and in 2018 there were over 220,000 patient visits to the service.

Improving Access to Care The Gynaecology Oncology team for the Ireland East Hospital Group’s Cancer Directorate is spread across the Mater Hospital, St Vincent’s University Hospital and the National Maternity Hospital. As part of the team’s commitment to improving their service to patients they agreed to undertake a Value Stream Analysis (VSA) to map out and identify areas for improvement for patient care.

The VSA was followed by a series of Rapid Improvement Events (RIEs) that defined and prioritised the improvements that need to be undertaken. The programme has resulted in significant improvements in relation the management of referrals and decreasing timelines from referral to Multi-Disciplinary Team (MDT) discussion.

Key improvements identified include

▶ Development of a standardised referral form for gynae oncology. The form was subsequently approved and adopted by the National Cancer Control Programme

▶ New triage process set up electronically and reviewed weekly by a consultant-led meeting

▶ Priority Clinic established for new/active recurrence patients (including Radiation Oncology Clinicians) from 8am to 1:30pm with Multi-Disciplinary Team meeting on same day

▶ Weekly MDT meeting re-structured to allow patients from earlier Priority Clinic to be discussed, with treatment plan completed and signed off per patient at the meeting

Major Trauma Centre

In February 2018, the Department of Health published the *A Trauma System for Ireland* report that recommended that Ireland's trauma services should be reformed.

The reorganisation should see the development of an inclusive trauma network with two Trauma Centres in Cork and in Dublin, supported by Major Trauma Units in other parts of the country. Following on from the report a trauma bid process is expected to be commenced by the government in 2019.

In response to the publishing of the report and following extensive preparatory work, the Ireland East Hospital Group will move forward with the nomination of the Mater Misericordiae University Hospital as the Major Trauma Centre in Dublin with St Vincent's University Hospital to be a Major Trauma Unit



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International experience and evidence has shown that when an inclusive trauma system is introduced, deaths from trauma will drop by up to a fifth in five years

”

with Specialist Services. Combined the Mater and St Vincent's, have the largest number of national specialities in the country and are already treating some of the sickest, most complex patients in the country.

In addition to their location on both the north and south sides of the city the two hospitals have the most modern emergency, radiology and critical care units in the country and the greatest range of specialities relevant to major trauma care of any of Ireland's hospitals.



These specialist areas are staffed by skilled, dedicated professionals. Many of them have trained in major trauma centres around the world and they maintain those links and continue to build on those experiences.

As part of the Ireland East Hospital Group's ambition to deliver an integrated health system across the spectrum of clinical care, the combined IEHG hospitals will deliver optimum safe outcomes for patients requiring the specialised care needed in significant trauma incidents

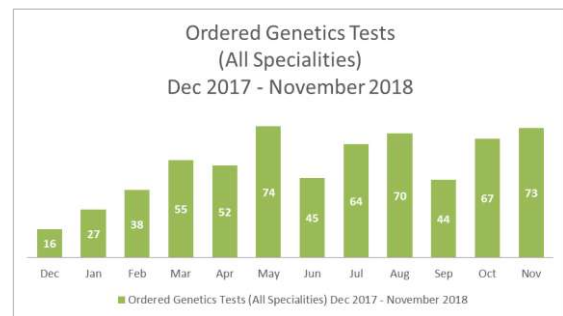
Personalised Medicine

Genomic medicine is transforming how we prevent, diagnose, treat and predict many diseases. The use of genomic data is rapidly increasing in healthcare and we can expect that health promotion and the treatment of diseases will be increasingly based on individual genetic makeup in the coming decade. These changes will impact on the care pathway and how the public health system is organised.

The genetics service at the Mater Hospital has developed significantly over the last few years with a broad range of clinical specialties already incorporate inherited conditions into their work including retinal disease, cardiac and neurogenetics disorders, familial gastrointestinal and breast cancer.

The Mater Misericordiae University Hospital has developed an Adult Congenital Heart Disease (ACHD) service in the last five years. Congenital Heart Disease, which usually has a genetic basis, now represents the largest number of birth defects in Ireland, accounting for 1% of all live births per year and 95% of children survive into adulthood. This national service provides specialist support to patients

with complex congenital heart defects requiring lifelong care, with approximately 250 new patients each year.



The development in the Ireland East Hospital Group of the Genomics Directorate, in 2018, with Prof Owen Smith as Executive Director, is a major step forward in the development of an integrated genomics service for the group.

The goal is to use genomic data to plan healthcare services and target them at the individual in the form of personalised medicine. In the future genomics research will be closely integrated into healthcare service delivery and patients will benefit from new understandings of clinically significant genetic variations.

Data Sharing Workshop To enable that future to be realised it is important that clinicians and researchers have access to high quality data. This is fundamental to delivering functioning genetics/ genomics services.

There are, however, challenges to sharing and accessing the patient required to deliver safe and effective services. In December 2018 the Mater Hospital hosted, a Genomics Directorate run, multidisciplinary workshop to address the challenges of data sharing.



Genomics Directorate Data Sharing Approach

The half-day workshop focused on delivering a common approach ensure that data sharing will enable optimum patient benefit.

Over 40 people attended the event with following groups/areas represented

- ▶ Clinical – consultants active in this area, geneticists, genetic counsellors and nurses
- ▶ Data analytics – bioinformaticians
- ▶ IT – Group CIO, IT Directors
- ▶ Laboratory – pathologists, clinical scientists, quality managers
- ▶ Regulatory and legal – GDPR experts, Data Protection Office, legal experts
- ▶ Research – hospital and university-based research
- ▶ Senior Management

The workshop was the first major step in achieving alignment around our objective of

achieving responsible data sharing in the area of genomics.

National Centre for Rare Diseases A rare disease is defined in Europe as a life-threatening or chronically debilitating disease affecting no more than 5 people per 10,000. There are an estimated 6-8,000 known rare diseases affecting up to 6% of the total EU population (at least 30 million Europeans).

“ **80% of all rare diseases are genetic** ”

The National Rare Diseases Office provides current and reliable information about genetic and rare diseases to patients, families and health professionals. The office was established in the Mater Hospital in 2015 with a mandate to ensure the

- ▶ Development of national rare disease care pathways and development of rare disease registries
- ▶ Centralisation of up-to-date Irish rare disease information through Orphanet Ireland (www.orpha.net)
- ▶ Establishment of a rare disease information help line to provide patients, families and health care providers with information and support relating to rare diseases
- ▶ A website with information and links to relevant rare disease services and organisations around Ireland and Europe

National Centre for Inherited Metabolic Disorders

The National Centre for Inherited Metabolic Disease (NCIMD) is a referral centre for people who are diagnosed with or suspected of having a metabolic genetic disorder. The paediatric service is based in the Children's University Hospital, Temple Street with the adult service is based at the Mater Misericordiae University Hospital. The Adult Unit in the Mater provides multidisciplinary care for patients with known or suspected metabolic disorders. The team at the hospital help patients to manage their conditions with optimal diets that match their metabolic needs.

The management of metabolic disorders is complex and demands dedicated input from the multi-disciplinary team led by a Metabolic Consultant. A holistic and family centred approach is used, with input from medical, nursing, dietetic, psychology, administration, social work, physiotherapy and laboratory staff. Suspected cases of metabolic disorder are referred from hospitals across the country.

Hereditary Cardiac Syndromes The Mater Hospital provides a national service for people with known or suspected inherited cardiovascular disease. The service diagnoses and manages the risk of inheritable cardiac risk and SADS (Sudden Arrhythmic Death Syndrome) in family run clinics. Clinical family screening can identify the cause of the SADS in approximately 25% of deaths, and genetic studies can help us identify the cause in another 15-20%.

The team delivers a comprehensive evaluation for patients to understand their diagnosis and the potential genetic findings associated with the condition and provides a comprehensive education and a treatment plan based on their clinical diagnosis and

specific needs. Experts in multiple disciplines including electrophysiology, cardiomyopathy, congenital heart disease, medical imaging, psychiatry and genetic counselling are brought together to provide the full spectrum of evaluation, clinical and genetic diagnostics and treatment modalities for adults and children.

Inherited Retinal Degeneration The Inherited Retinal Degeneration (IRD) clinic was established to provide world class standard in IRD care at clinical phenotyping, genotyping, support and counselling level. For the past three years the service has been supported by grant aid from Fighting Blindness and in clinic patient support via the Sight Loss Advisors (in partnership with National Council for the Blind).

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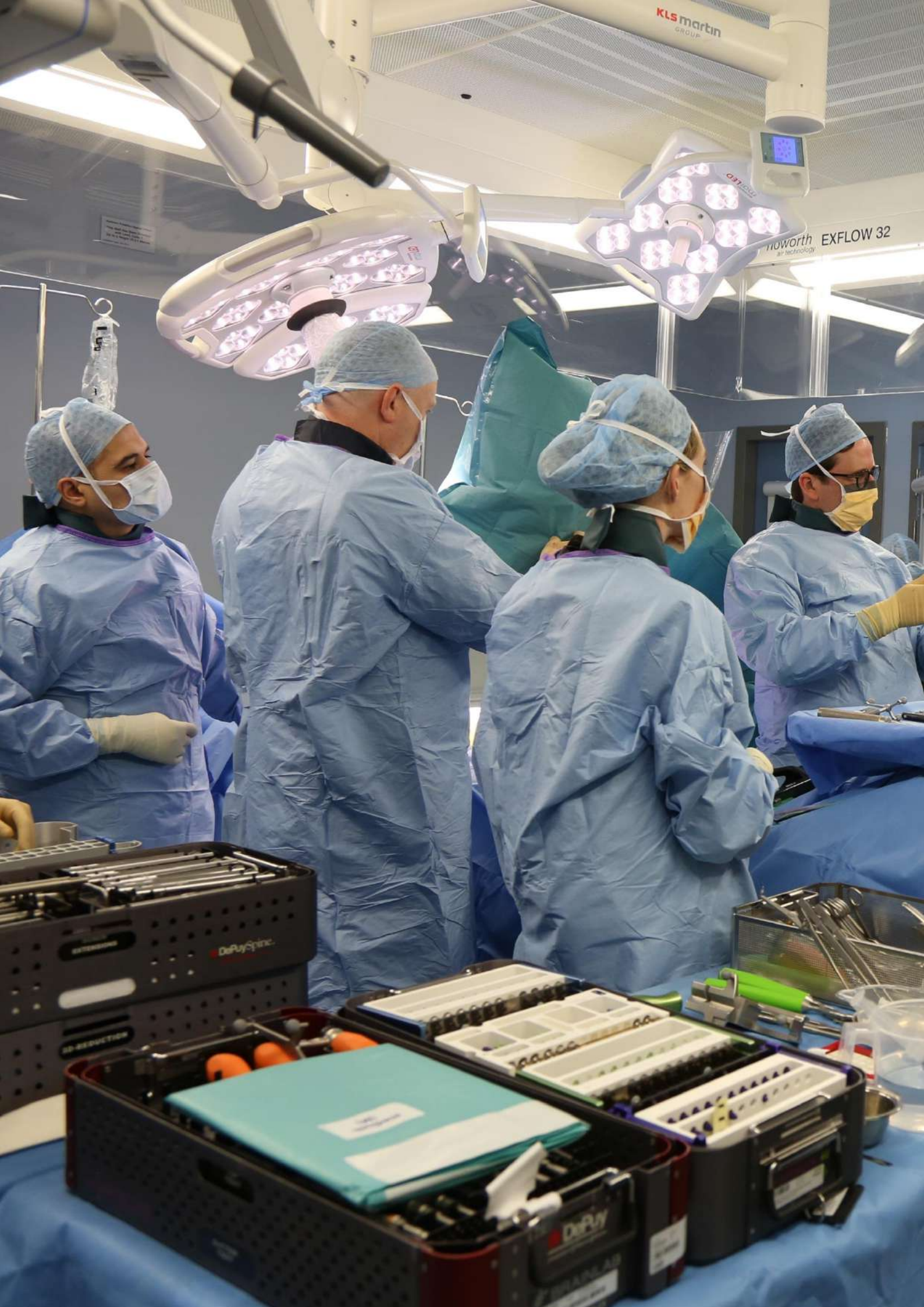
1,008 genetic tests that we have sent from the Mater Inherited Cardiac Conditions (Family Heart Screening) Clinic between 2008 and the end of August 2018

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The clinic has now employed a part time Geneticist and a Genetic Counsellor (split between the Mater and Children's University Hospital, Temple Street) and successfully completed confirmatory genotyping on approximately 200 patients.

Colorectal Cancer Family Screening Clinic

Colorectal cancer can run in families, and about 5-10 % of colorectal cancer is thought to be hereditary.



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Noworth EXFLOW 32
Air Technology

DePuy Spine

DePuy

Clinical Services

Cancer and Surgery Directorate

Cancer Care

Cancer Clinical Academic Directorate The Ireland East Hospital Group, with its academic partner UCD, is evolving into an Academic Health Science Centre (AHSC) with Clinical Academic Directorates (CADs) as their cornerstones. CADs must have a national and international perspective on their capability and potential and should provide tertiary and/or quaternary services and be internationally recognised for excellence in research and clinical practice.

The Ireland East Hospital Group's Cancer Clinical Academic Directorate brings together the group's two nationally designated cancer centres at Mater Misericordiae University Hospital and St Vincent's University Hospital into a single cancer function operating across two sites and embeds academic research into the care system. The Cancer Clinical Academic Directorate's objective is to become an internationally recognised comprehensive cancer centre. A single service that covers the full spectrum of a patient's journey from

prevention to survivorship. To do that we are leveraging the fact that more cancer patients are treated in the IEHG Cancer Clinical Academic Directorate than in any other hospital group, leveraging the strong cancer research centre base in our hospitals and utilising our emerging strength in genomics. The Mater Misericordiae University Hospital is one of the eight nationally designated cancer centres, a designated centre for breast, lung, prostate and colorectal cancer as well as being a major cancer clinical trials centre.

Diagnosed Cancers at the Mater 2018

▶ Breast	780
▶ Colorectal	231
▶ Gynaecological	425
▶ Head and Neck (including Thyroid)	95
▶ Melanoma and Squamous Cell Carcinoma	332
▶ Lung	250
▶ Peritoneal	90
▶ Urological	331

Integrated Cancer Care Integrated Care at the Cancer Directorate starts with the formation of tumour groups in each speciality and ends with a fully integrated service with clearly defined care pathways. Gynaecological oncology and head and neck cancer are the most advanced services in this respect leading to defined patient benefits including

▶ **Access** Reform of the tertiary hospital referral form and system to increased capacity in our triaging and diagnostic services and streamlined referral process.

▶ **Efficiency** Improved efficiency within the Gynaecological Oncology service through standardisation of processes and data across the group and more effective utilisation of available OPD and theatre capacity across hospitals

▶ **Outcome** More person centred, expedited and efficient access and management for the patient through the Gynaecological Oncology service from referral through treatment and to survivorship

HIPEC for Ovarian Cancer The Gynaecological Cancer service operates across three sites (Mater Hospital, National Maternity Hospital and St Vincent's University Hospital). This single service integration aligns with the national strategy of centralising lower volume cancer services. Patients with a gynaecological cancer move between sites to avail of capacity in OPDs and theatres or gain access to specialised services in one of the group hospitals.

This integration of service is exemplified by the provision of HIPEC for ovarian cancer. Hyperthermic intraperitoneal chemotherapy (HIPEC) is a highly concentrated, heated chemotherapy treatment that is delivered

directly to the abdomen during surgery. The Mater Hospital is the only site in Ireland providing this service. Ovarian cancer patients attending the Cancer Directorate, irrespective of which hospital they attend, can seamlessly avail of this treatment option if appropriate. The Cancer Directorate is now the largest provider of gynaecological oncology care in the country and has developed a streamlined process to manage the expected doubling of the requirement for HIPEC in ovarian cancer patients in the next 5 years.

Next Generation Sequencing and Cancer Care

Academic Health Science Centres integrate academic research into the care system with resulting benefits for patients. This integration of patient care and research is exemplified by the collaboration with the Genomics Directorate on a Next Generation Sequencing project for Ovarian Cancer. The research project focused on the development of Next Generation Sequencing and Digital PCR platforms as non-invasive tools to monitor and to predict response to chemotherapy in high-grade serious ovarian cancer.

One of the first patients enrolled on the research project was a 38-year-old lady with a history of stage IV low grade serous ovarian cancer (LGSOC), who developed further disease progression and required another treatment option.

A whole exome sequencing (WES) was carried out on a number of surgical specimens and also from biopsies of her recurrent disease. The group identified a novel targetable BRAF mutation D594G. The team would not have been able to identify this mutation using a panel-based assay which highlights the benefits of whole exome sequencing and the integration of clinical research and clinical

services for improved patient care. The bioinformatics pipeline, developed by UCD based bioinformaticians, meant the turnaround time from sequencing to final target identification was 3 days, with a multidisciplinary decision on further treatment options reached in less than 2 weeks.

Head and Neck Cancer In 2018 the Head and Neck services from the Mater and St. Vincent's Hospitals formed an integrated unified service. The integration of the services allows the pooling of resources and takes advantage of the breadth of expertise in both units. Not only does this allow more efficient and flexible use of theatre time, ICU / HDU availability, it affords access to a broader range of specialties on-site for more complex cases. The direct benefit for patients has been the reduced waiting times for outpatient appointments and theatre access despite the high volume of Head and Neck cases passing through the new integrated service.

A bi-weekly Head and Neck Multidisciplinary Team Meeting (MDT) is run in both hospitals with more complex cases discussed at the multi-site teleconferenced MDT across both hospitals. For more complex surgical cases the team takes advantage of the broad mix of specialties and expertise with cases that require free flap reconstruction by our plastic surgery colleagues brought to the Mater Hospital for surgery. While patients who require transoral robotic surgery (TORS) have their surgery in St. Vincent's until the Da Vinci Robot is installed in the Mater Hospital (due in 2019).

National Centre for Peritoneal Malignancy The National Centre for Peritoneal Malignancy at the Mater Hospital has received in excess of 400 referrals from across the island of Ireland with year on year activity increasing by

15-20%. Just 40% of patients diagnosed with this type of cancer are eligible for this type of cancer surgery which can improve and extend the quality of life for patients with these types of cancer. The team at the Mater recently marked the milestone for the performance of over 200 National Cytoreductive Surgery (CRS), combined with Heated Intra-Peritoneal Chemotherapy (HIPEC) surgical procedure for peritoneal cancer patients in Ireland.

Prior to the services repatriation to Ireland from Basingstoke, UK in 2013, patients diagnosed with these forms of cancer had the very poor prognosis of a 6-month life expectancy. Patients can now benefit with improved survival, and importantly, improved quality of life, from this aggressive surgical approach. In 2018, the procedure became a treatment option for woman with advanced ovarian cancer.

Ophthalmology Institute In response to the National Clinical Programme for Ophthalmology (Model of Eye Care, May 2017) the Mater Hospital and the Royal Victoria Eye and Ear Hospital are looking to establish an Ophthalmology Institute. The two hospitals provide nearly all the public surgical ophthalmology services in the east of the country. The Model of Eye Care recommends the integration of hospital and community care, with clinicians and care providers working in teams, as the best approach to deliver care for patients and to address the structural deficits in the current system.

The establishment an Ophthalmology Institute to meet the increased demand for ophthalmology services is aligned to Sláintecare objective of treating the patient as close to home as possible and with the appropriate healthcare professional. The

service will seek to improve the quality of the service while expanding access to that service. The integration of hospital and community care, with clinicians and care providers working in teams, is the best approach to deliver care for patients and to address the structural deficits in the current system. The efficient operation of the multidisciplinary team (MDT) is central to the delivery of primary eye care. Implementing a more community-based model will improve access to care and will help address the current adult and paediatric waiting list crisis. The Mater took a first step on delivering an integrated community care model with the development of the ophthalmology service at the Grangegorman Primary Care Centre, which was opened in September 2018.

Inherited Retinal Degeneration Programme

The Inherited Retinal Degeneration (IRD) programme has been running between the Mater and the Royal Victoria Eye and Ear hospitals over the last few years. This multi-disciplinary programme is co-funded by the patient group Fighting Blindness and was established to provide world class standard in IRD care at clinical phenotyping, genotyping, support and counselling level.

Sight Loss Advisors In November 2018 the Mater working in collaboration with the National Council for the Blind received approval from the HSE for a Sight Loss Advisor post. The sight loss advisor (counsellor / community resource) will be based in the clinics and will support the numerous patients with marked vision impairment and blindness. The advisor will cover 3 weekly clinics at the Mater and will support patients at a very difficult time and guide them towards the key services and steps they need to take.

Ophthalmology Diabetic Retinal Treatment Centre

The National Diabetic Retinal

Screening Programme was introduced in 2013 to provide free regular diabetic retinopathy screen to people with diabetes. The Mater Misericordiae University Hospital is the largest Diabetic Retinal Treatment Centre. The service continues to grow as more and more patients with diabetic retinopathy attending facilitated by an overhaul of appointment scheduling.

Trauma Care Conference 2018 A Trauma System for Ireland was published by the Department of Health in February 2018. It addresses the entire care pathway and recommends the establishment of an inclusive trauma system with two hub and spoke trauma networks and up to 13 trauma receiving hospitals. There will be one designated Major Trauma Centre in Dublin and one in Cork. The Ireland East Hospital Group has selected the Mater as its candidate for the Major Trauma Centre with St Vincent's University Hospital as a Trauma Unit.

The Mater Hospital hosted a Trauma conference on 12th June 2018 with the objective of exchanging ideas, experiences and lessons learned about the role of internationally accepted systems and protocols in the field of trauma care.



Speaking at the event Professor Mark Fitzgerald, Director of the Alfred Hospital Trauma Service in Melbourne, one of the leading Trauma Centres in the world, said:

“We have established Trauma Systems and Centres in Australia, China, India, Myanmar, Saudi Arabia and Sri Lanka. The Mater and St Vincent’s should become a central part of Ireland’s new trauma network. We know from experience and evidence that when an inclusive trauma system is introduced, deaths from trauma will drop by up to a fifth in five years. We will be working alongside the Mater and St Vincent’s to deliver similar results here in Ireland.”

Scoliosis The Mater has taken over the transitional care service for patients with scoliosis moving from paediatric to adult services. There has been a significant improvement in the numbers waiting for scoliosis surgery. The list has reduced from 25 patients waiting at the end of December 2017 to 13 at the end of 2018. Of the 13, two patients are waiting over 4 months, and this is by patient choice. The hospital is working closely with the Children’s University Hospital Temple Street to undertake additional day case orthopaedic surgery for long waiting children. The service has been significantly supported by investment from the HSE in increasing surgical capacity to support the development of services for paediatric orthopaedics, including scoliosis patients. This collaboration between Cappagh and the Mater Hospitals has played a major role in the reduction of paediatric and adolescent waiting lists during 2018.

Spinal Care System of Care Programme The National Spinal Cord Injury Service operates between the Mater Misericordiae University Hospital (Mater) and the National Rehabilitation Hospital (NRH). This service provides comprehensive care for patients with spinal cord injury from the acute episode through to their return to the community. For the majority of patients, this will be followed by a lifelong outpatient service at NRH.

The service admits patients with spinal cord injury from throughout the country, and also Irish nationals injured abroad who require ongoing treatment and care for their injury. Following a traumatic spinal cord injury, many patients are first transferred by the local medical service to the Mater’s National Spinal Injuries Unit. Early assessment and treatment are carried out in the Mater and the Rehabilitation Medicine Consultant service from the NRH follows the patients’ progress. Patients considered suitable for inpatient rehabilitation are transferred to the NRH as soon as possible. This ensures continuity of care for the patient, from both orthopaedic and rehabilitation medicine.

Cardiovascular, Respiratory, Renal, Diabetes and Endocrine Directorate

The Mater Misericordiae University Hospital is a major national and international cardiovascular centre, providing care to patients with the full spectrum of cardiac conditions. The hospital is the National Referral Centre for Adult Congenital Heart Disease, Sudden Adult Death Syndrome and is the National Transplant Centre for Heart and Lung. In addition, the hospital is a tertiary referral centre for interventional cardiology, electrophysiology and heart failure.

Acute Cardiology Unit The acute cardiology unit at the Mater cares for patients with cardiovascular and endocrine diseases. It consists of a 12-bed coronary care unit, a 31-bed cardiology/endocrine ward and a cardiac catheterisation lab.

The unit is a national centre for care for people with cardiovascular disease and cares for people with diseases such as

- ▶ ischaemic heart disease (myocardial infarction, angina pectoris)
- ▶ arrhythmias (abnormal heart rhythms)
- ▶ heart failure
- ▶ valve disease
- ▶ adult congenital heart disease

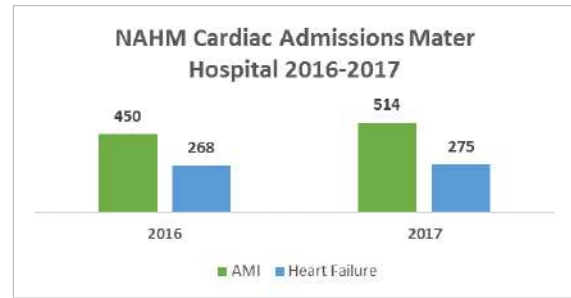
In addition, the unit manages patient care for those waiting for heart transplants.

National Audit of Hospital Mortality (NAHM)

The National Audit of Hospital Mortality (NAHM) report focus on data analysis to improve the quality of care that is delivered at a hospital level. The National Audit of Hospital Mortality for 2017 was released in November 2018 and presents an analysis of hospital mortality across six key diagnoses

- ▶ acute myocardial infarction (AMI)
- ▶ heart failure
- ▶ Ischaemic stroke
- ▶ haemorrhagic stroke
- ▶ chronic obstructive pulmonary disease (COPD)
- ▶ pneumonia

National Audit of Hospital Mortality Admissions 2016-2017 for Acute Myocardial Infarction and Heart Failure



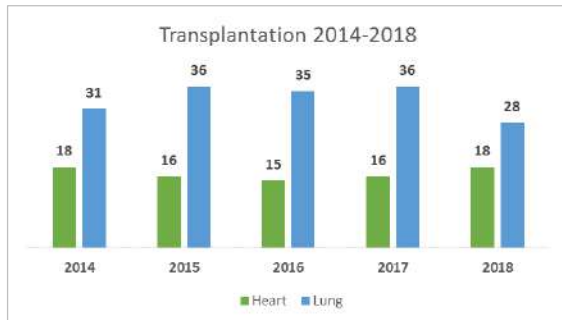
The audit uses a standardised mortality ratio (SMR) to calculate mortality trends. The SMR is a calculation of the number of patients that died within a hospital compared to the number that were expected to die when the SMR factors are taken into account. The SMR factors are

- ▶ age
- ▶ gender
- ▶ co-morbidities (other existing conditions)
- ▶ type of admission (emergency or elective)
- ▶ source of admission (home, nursing home, etc.)
- ▶ number of emergency admissions (last 12 months)
- ▶ proxy level of deprivation (medical card)
- ▶ palliative care

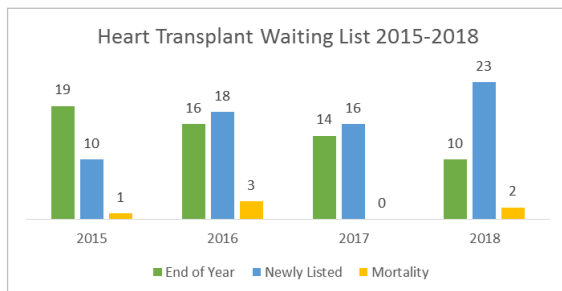
The National Audit found that the Mater Hospital was within the expected range for Standardised Mortality Ratio for all six diagnoses areas.

Heart and Lung Transplantation The Mater is the National Centre for Heart and Lung Transplantation. In 2018 there was a slight drop in lung transplant activity with an

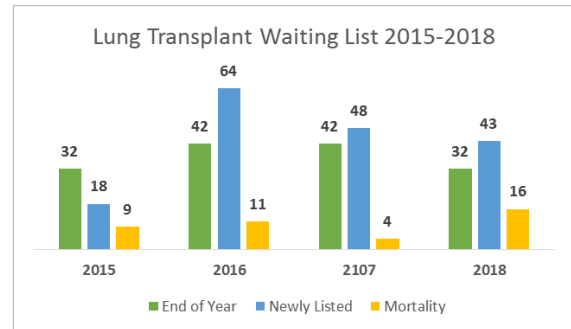
increase in heart transplant activity. The transplant activity once again showed the challenges of organ donation and matching recipients with surges of activity at periods during the year.



The multidisciplinary team includes transplantation surgeons, heart failure and transplantation cardiologist, respiratory and transplantation physicians, transplant coordinators, clinical nurse specialist, nursing, physiotherapist, psychologist, social workers and other medical personal depending on the patients underlying condition and associated conditions.



The team at the Mater works closely with the National Centre for Cystic Fibrosis in St Vincent's University Hospital for Lung Transplantation. Ireland has the highest incidence of cystic fibrosis in the world and that cohort of patients are one of the main recipients of the lung transplantation service at the Mater.



Lung Transplantation Unit Study Day The Mater Lung Transplant Unit welcomed 40 representatives from Cystic Fibrosis (CF) centres from across the county, and 10 staff in-house to a study day entitled Lung Transplant for People with CF-The Journey. The main aim of the day was to share knowledge to empower the CF multi-disciplinary team and encourage patient education to begin earlier in referring centres to aid realistic expectations about lung transplantation. Speakers on the day included several members of the Mater lung transplant team. The programme covered all aspects of transplant care, from the assessment process to optimisation of health prior to listing, through surgery and post-transplant care regarding diet, lifestyle, medicines and psychosocial considerations.

“
The Mater programme is now the third busiest in Europe
 ”

Post Lung Transplantation Masterclass (for patients, family and caregivers) In January and May 2018 lung transplant recipients, their family members and caregivers were invited to Masterclasses in post lung transplant education. This masterclass included presentations from members of the lung

transplant multidisciplinary team: Patricia Ging, (Senior Pharmacist, Chief 2), Sandra Murphy (Senior Dietician), Irene Byrne (Senior Physiotherapist) and Maria Love (Senior Medical Social Worker).

The purpose of the education session was fourfold

▶ To remind patients of the importance of adhering to their medication regimen, with the correct timing and administration of medications

▶ Emphasise the importance of maintaining a healthy life style after transplantation including eating for health and continuing with the advice on a clean diet

▶ Encourage patients to maintain a healthy weight and continue with the daily exercise programme prescribed for each patient

▶ Identify and recognise the stressors and anxiety related concerns following transplantation and how to manage this and how to seek help if needed



Hereditary Cardiac Syndromes The Mater Hospital provides a national service for people with known or suspected inherited

cardiovascular disease. The service diagnoses and manages the risk of inheritable cardiac risk and SADS (Sudden Arrhythmic Death Syndrome) in family run clinics. Clinical family screening can identify the cause of the SADS in approximately 25% of deaths, and genetic studies can help identify the cause in another 15-20%.

“
1,008 genetic tests that we have sent from the Mater Inherited Cardiac Conditions (Family Heart Screening) Clinic between 2008 and the end of August 2018
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The team delivers a comprehensive evaluation for patients to understand their diagnosis and the potential genetic findings associated with the condition and provides a comprehensive education and a treatment plan based on their clinical diagnosis and specific needs. Experts in multiple disciplines including electrophysiology, cardiomyopathy, congenital heart disease, medical imaging, psychiatry and genetic counselling are brought together to provide the full spectrum of evaluation, clinical and genetic diagnostics and treatment modalities for adults and children.

National Pulmonary Hypertension Unit

Pulmonary hypertension (PH), is a complex and often misunderstood disease. The term PH means high blood pressure in the lungs. In PH, the blood vessels specifically in the lungs are affected.

They can become stiff, damaged or narrow, and the right side of the heart must work harder to pump blood through.

The National Pulmonary Hypertension Unit was established at the Mater Hospital in 2003. The PH unit is the national referral and treatment centre for those diagnosed with PH in Ireland. The unit provides weekly specialty consultant led clinics and PH nurse specialist clinics and operates a hub and spoke model with Cork, Galway and Limerick to coordinate patient services and improve access to therapy

Heart Failure Heart Failure is a chronic condition that affects over 100,000 patients in Ireland every year. The prognosis is poor with this debilitating illness characterised by exacerbations and remissions, multiple hospital admissions, inability to work and depression. The hospital provides a dedicated heart failure clinic for patients that covers the entire spectrum of care from medical management through device implantation to heart transplantation.

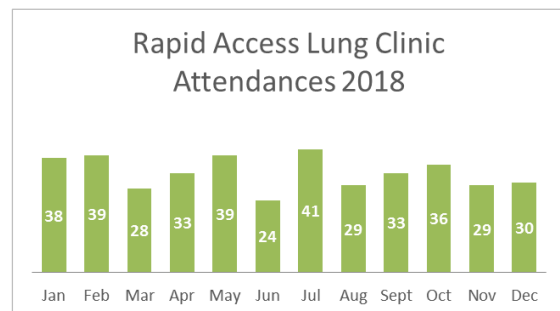
The service is supported by a Heart Failure Clinic database that enhances the delivery of care to patients and facilitates research and audit. This database is identical to that used by our fellow IEHG hospital St Vincent’s University Hospital and allow greater collaboration on care delivery and research purposes.

The team also provides study days for GPs covering the all areas of the heart failure services provided by the hospital. Ranging from outpatient disease management clinics at one end through cardiac implantable cardiac devices, ventricular assist devices (VADs), transplantation to end of life care at the other.

Adult Congenital Heart Disease MDT ACHD patients are complex patients with multi-faceted issues requiring integrated and coordinated care across specialities. The

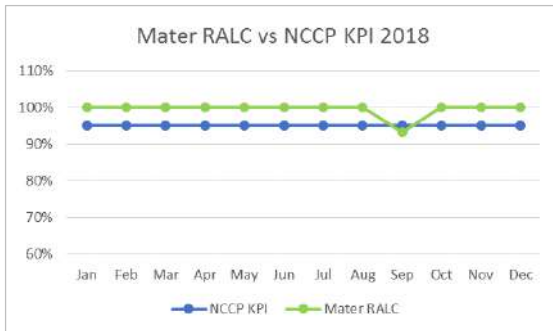
service at the Mater holds a multidisciplinary team (MDT) meeting with electrophysiology, the national pulmonary hypertension unit, national transplant team and the Rotunda obstetric team to co-ordinated access for treatment for this complex patient group. These multi sub-speciality experts ensure clinical consensus and streamlined care management planning.

Rapid Access Lung Clinic The Mater Hospital is part of the Ireland East Hospital Group (IEHG) and with its sister hospital St Vincent’s provides the majority of cancer care for the group. Both hospitals are nationally designated cancer centres (there are 8 nationally) and combined are the largest provider of rapid access cancer services in the country.



The rapid access lung clinic was established, as part of the National Cancer Control Programme, at the Mater Hospital in 2011, with patients offered appointments for outpatient clinic assessment within ten working days of receipt of referral from their doctor where there is a concern of lung cancer. Approximately 400 patients attended the clinic in 2018.

The National Cancer Control Programme’s key performance indicator is “Patients with suspected lung cancer referred to a RAC shall be offered an appointment to attend within 10 working days of receipt of referral”. The target is set at 95%.



Cardio-thoracic Surgery Transformation project

In 2017, the national cardio-thoracic service and the transformation office began an ambitious project, reviewing the cardiothoracic service pathways in their totality- across the patient journey from point of entry to discharge.

The project was seeking to optimise the service to

- ▶ Improve access and wait times for patients through improved scheduling, planning and distribution systems. Improve flow through the cardiothoracic ward and associated critical care pathways through co-ordinated access to theatres and improved communication systems.

- ▶ Improve overall experience for patients from the perspective of reduced delays and cancellations of their surgeries. The work between the Transformation Office and the Cardio-thoracic team has progressed key aspects such as bed protection for speciality and co-design of a pre- op clinic to allow full work-up for cardiac surgery patients and to enable day of surgery admission for appropriate patients.

Recent project developments include

- ▶ A CNM2 joined the team with a co-ordinating function for Cardio-thoracic surgery and recovery. The CNM2 will attend ward rounds with a focus on patient flow and will manage the work-up clinic to progress day of surgery admission.

- ▶ Co-design of a work-up clinic to enable full work up for patients a week in advance of surgery is complete.

- ▶ The scheduling system has been adapted to align with the new electronic booking system via the Electronic Waiting List Management system (EPSILON) project as specific process design is required for the Cardiothoracic service.

- ▶ The patient information project group has successfully implemented a scanning mechanism which greatly improves access to and retrieval of patient documentation (non-Mater diagnostic reports).

Critical Care, Anaesthesia, Elective Surgery, Theatres and Sterile Services (CCAEST) Directorate

The CCAEST directorate encompasses Anaesthesia, Critical Care and Pain Medicine, the Operating Theatres and the Central Sterile Services Department provides high quality, personalised patient care.

The team at the Directorate works interdependently with the clinical teams to support patients with a diverse and complex case mix including

▶ Elective and emergency surgical patients

▶ Heart and lung transplant patients

▶ Critical care for acute medical and surgical patients

▶ Interventional cardiology

▶ Interventional radiology

Intensive Care The Intensive Care Medicine (ICM) service in the Mater Hospital was established in response to the development of the National Cardiac Surgery Unit and the increased number of critically ill patients being cared for by the hospital. Intensive Care admits critically ill patients from all disciplines from the Mater and Rotunda Hospitals and those referred from outside the hospital on a 24 hour basis.

The Mater Hospital ICM service has a central role in the provision of acute medical care for cardiothoracic surgery patients (including heart and lung transplant patients), spinal injury patients, general, vascular, hepatobiliary, and major head and neck surgery patients, cardiology, respiratory medicine, endocrine, haematology and oncology patients.

“

The Mater ICU is one of Ireland's leading intensive care services, providing treatment to approximately 2,800 patients each year

”

In February 2014 the critical care complex moved to a new state of the art 36 bed facility on the third floor of the Whitty Building in the Mater. The critical care service is provided for in an 18 bed ICU and an adjoining 18 bed HDU. The Intensive Care Unit (ICU) is approved for postgraduate training in ICM by the Joint Faculty of Intensive Care Medicine of Ireland (JFICMI) and the College of Intensive Care Medicine (Aus/NZ) and also for the UCD / Mater postgraduate nursing diploma training by An Bord Altranais.

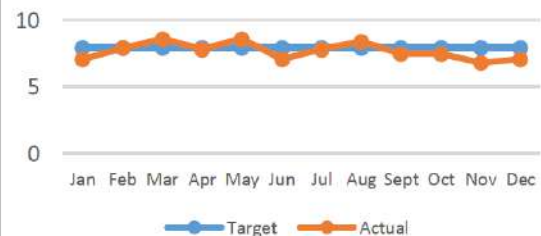
Elective Surgery There is an annual growth rate of around 2-3% in the number of people requiring hospital care as our population ages and we are living longer with multiple co-morbid conditions. The Mater Hospital has undertaken many initiatives that ensure that we can properly manage the growing volume and complexity. Two of the key measures in this regard are Day of Surgery Admissions and Average Length of Stay.

“

Over 78% of elective surgical patients had their day of admission on their day of surgery

”

Average Length of Stay 2018





Hospital readmission rates are an important indicator of patient health outcomes and of the healthcare system performance. Low readmission rates in healthcare are regarded as an indicator of effective care and efficient co-ordination of services. International studies and quality-reporting initiatives have shown that 15-25% of people who are discharged from the hospital will be readmitted within 30 days or less, and that many of these readmissions are preventable. The Mater Hospital has set targets for surgical readmissions at 3%.

Extracorporeal Life Support Service (ECLS)

The Extracorporeal Life Support Service (ECLS), established in 2009, provides advanced physiologic support for adult patients with acute severe potentially reversible heart or lung failure that have continued to deteriorate despite optimal conventional therapy. Specific equipment is required for ECLS but more importantly, continued high quality training is essential to ensure that ICU nursing and physician staff acquire and maintain the necessary management skills to care for these very dependent patients. Approximately 15 – 25 patients are supported by ECLS in the ICU each year.

The ECLS service is guided and supported by the International Extracorporeal Life Support Organisation (based in Ann Arbor, Michigan, USA) which compares outcome in our patients to patients from similar units around the world. ECLS is indicated for acute severe

hypercarbic or hypoxic respiratory failure. In patients who are too unstable to transfer to the Mater with conventional mechanical ventilation, a Mater ECLS Retrieval service can be dispatched to a referring hospital. Extracorporeal support can be deployed in the referring ICU and the patient can be safely transferred back to the Mater ICU.

Robotic Surgery The Mater is always seeking to leveraging maximum benefit from technological advancements for patients. The CCAEST directorate co-ordinated a case for Robotic Surgery development at Mater. The initiative was supported by a high number of surgical specialities and providing an opportunity for the hospital to benefit from the expertise already on the campus due to the relationship with Mater Private Hospital, who have an established robotic surgery onsite. The Mater Robotic Surgical Programme will commence in 2019.

Robotic surgery is an advanced form of minimally invasive or laparoscopic surgery where surgeons use a computer-controlled robot to assist them in certain surgical procedures. The robot's "hands" have a high degree of dexterity, allowing surgeons the ability to operate in very tight spaces in the body that would otherwise only be accessible through open surgery. The key benefits for patients are

- ▶ shorter hospitalisation
- ▶ reduced pain and discomfort
- ▶ faster recovery time and return to normal activities
- ▶ small incisions, resulting in reduced risk of infection

▶ reduced blood loss and transfusions

▶ minimal scarring

Emergency and Specialty Medicine Directorate

Major Trauma Centre In 2015, the National Clinical Programme for Trauma and Orthopaedic Surgery recommended the development of a national trauma network for trauma care provision. Major trauma patients have complex injuries and need 24/7 emergency access to a wide range of consultant-delivered specialist clinical services and expertise in order to have the best chance of surviving and recovering. Evidence from the UK has shown that the implementation of a Hub and Spoke mode, with a central Major Trauma Centre (to look after the most seriously injured patients) combined with Trauma Units, has led to a 30% reduction in preventable mortality.

The development of a trauma system for Ireland seeks to ensure that anyone who suffers a traumatic injury (ranging from mild to severe)

▶ receives a consistent and coherent response irrespective of the time of day and geographical location at which the incident occurred

▶ is rapidly and safely transferred to the hospital that can manage the definitive care of their injuries either directly or by expedited inter-hospital transfer

▶ is provided with trauma services that are coordinated and organised across the patient pathway, with no delays

A Trauma System for Ireland was published by the Department of Health in February 2018. It addresses the entire care pathway from prevention through to rehabilitation and recommends the establishment of an inclusive trauma system with two hub-and-spoke Trauma Networks and up to 13 trauma receiving hospitals.

At the heart of each Trauma Network will be a single Major Trauma Centre, one hospital which will deal with all major trauma cases across the Network it serves. There will be one hospital in Dublin selected as the Major Trauma Centre and the HSE Trauma Report Implementation Group is organising a selection process across the Dublin Hospital Groups to designate a single Major Trauma Centre, as well as a reduced number of Trauma Units.

The Ireland East Hospital Group has chosen the Mater Hospital as its candidate for selection as the Major Trauma Centre, with St Vincent's University Hospital as a Trauma Unit. While no one hospital in Dublin has every specialist service component required for immediate designation as a Major Trauma Centre, the Mater has more of the required specialties than any other candidate site. Work has been ongoing throughout 2018 in preparation for the formal launch of the selection process by HSE in the course of 2019.

Transformation Programme for Unscheduled Care The Unscheduled Care project is one of the major undertakings by the hospital in 2018. The approach being taken is through six work-streams mapped onto the acute model. Combined the work-streams address the impacts of unscheduled referral to or arrival at the hospital through acute assessment and management into specialty ward working and finally discharge.

The Transformation Office is working closely with the Acute Floor and Specialty Ward Project Steering Group to deliver the project and the hospital is aiming to be a future site for the HSE proposed model for development of an acute floor. A business cases for an additional 28 beds to develop an acute floor, including capital and non-capital running costs were submitted in 2018. In the second half of 2018, the project has focused on those work-streams that do not require additional funding, physical restructuring or bed capacity.

The Bed on Time project aims to improve patient experience times (PETs) in the emergency department through system wide improvements to support patients' access to a bed on the right ward in a timely manner. A launch workshop for the project was held in first week of October, and followed by a series of large group, multidisciplinary workshops focussed on key areas for improvement including right patient in the right place, discharge ways of working and flow system usage. The initial report out of the workshops on 5th October 2018 provided a structured implementation plan of actions. 20 implementation actions were commenced in Q4 2018, and the 30- and 60-day updates were delivered in November and December respectively. The 100 day update was on 24th January, 2019.

Care of the Elderly Post Acute Service The Care of the Elderly service has evolved over the last few years to include a Geriatric Rapid Access Clinic and a Post-Acute Care Service in St Vincent's Hospital, Fairview. The Rapid Access Clinic is a public service provided by Charter Medical, in partnership with the Mater Misericordiae University Hospital and Beaumont Hospital for patients who are over 65 years of age. This clinic guarantees access to patient appointments within 72 hours,

upon referral from their GP or an Emergency Department. The clinic is staffed by experienced doctors and nursing teams, working under consultant geriatricians from the Mater Hospital.

The post-acute care service is for patients who have are medically stable but are not ready to go home or to go to a nursing home. For these patients, the post-acute service provides a specialised service that provides support to patients and their family until they reach their full potential and can be discharged from hospital. The 3 post-acute care service units (Synge, Yeats and Joyce) are based in St Vincent's Hospital in Fairview.

National Deep Brain Stimulation Service

Deep Brain Stimulation (DBS) is a long-term treatment option for adult patients with selected movement disorders including Parkinson's Disease (PD), essential tremor and dystonia. Patients with PD account for a significant proportion of the referrals for DBS, which is a surgical procedure aimed at providing relief of motor function symptoms that are no longer controlled by drug therapy. It is referenced within the PD pathway in the Model of Care of the National Clinical Programme for Neurology.

Deep Brain Stimulation had previously not been available as a treatment option for Irish patients except through the Treatment Abroad Scheme. A business proposal was developed for the HSE to address the situation using a coordinated approach of utilising the existing services at the Dublin Neurological Institute at the Mater Hospital to assess patients for suitability before referral to Belfast for surgery.

Post-operative care is also based in Eccles Street. In January 2018 confirmation from the HSE was received that funding was to be

made available to support the development of this much needed initiative over the course of 2018.

Stroke The Mater Hospital is certified by the European Stroke Organisation as a Stroke Unit. Acute organised stroke unit care is described as the backbone of the chain of care for all European stroke victims. Across Europe however access to stroke units is, however, still limited.

To improve the availability and the quality of stroke care, the European Stroke Organisation (ESO) has created an ESO Stroke Unit Certification Committee to define the requirements and criteria for official certification as ESO Stroke Units and ESO Stroke Centres based on scientific evidence. ESO Certification

- ▶ aims to improve the quality of patient care by reducing variation in clinical processes

- ▶ provides a benchmark for quality of stroke management

- ▶ provides an objective assessment of clinical excellence – based on the *European Stroke Organisation recommendations to establish a stroke unit and stroke centre*

- ▶ creates a loyal, cohesive clinical team

- ▶ promotes a culture of excellence across the organization

The Mater received that certification in 2017 and provides specialist early stage care for stroke patients through its acute stroke unit and approximately 400 patients were admitted to the hospital with stroke in 2018.

While the hospital specialises in providing acute services, focused on care for patients in the early stages after a stroke. Once the patient is medically stable, the Mater team will coordinate the patient's ongoing care in other units including

- ▶ **Isolde stroke rehabilitation unit** A specialist stroke rehabilitation unit located in St Mary's Hospital in the Phoenix Park

- ▶ **The Royal Hospital, Donnybrook** The Royal Hospital's stroke rehabilitation unit and Maples unit, provides rehabilitation for patients

- ▶ **The National Rehabilitation Hospital** Provides a comprehensive range of specialist rehabilitation services

Another option for patients is to get support from the Mater Hospital's early supported discharge (ESD) service, a team of therapists from the hospital that care for the patient in their home after discharge. They support the transition home and start the rehabilitation process.

Gastroenterology The Mater Hospital is a tertiary referral centre and one of the National Leads in ERCP (Endoscopic Retrograde Cholangio-Pancreatography). In certain cases, patients require a more specialised endoscopic procedure with greater sensitivity and an ability to detect gastrointestinal abnormalities that a regular endoscopy may miss.

ERCP is a diagnostic procedure used to examine the gallbladder, bile and pancreatic ducts. ERCP combines X-ray and endoscopy, allowing the consultant to obtain high-quality images of the anatomy.

ERCP is used when it is suspected that the person's bile or pancreatic ducts may be narrowed or blocked due to

- ▶ tumours
- ▶ gallstones that form in the gallbladder and become stuck in the ducts
- ▶ inflammation due to trauma or illness, such as pancreatitis
- ▶ infection
- ▶ valves in the ducts, called sphincters, that won't open properly
- ▶ scarring of the ducts, called sclerosis
- ▶ pseudocysts—accumulations of fluid and tissue debris

ERCP is a technically demanding procedure with the National Guidelines recommending between 200-300 procedures performed annually by each endoscopist to maintain the relevant competence level.

BowelScreen The national bowel cancer screening programme (BowelScreen) is a national population screening programme for bowel cancer. It offers screening every 2 years to all men and women aged 60 to 69. Patients who have an abnormal screening test are offered a colonoscopy procedure. This investigational procedure is carried out in one of 14 designated hospitals around the country. The Mater is one of the 14 designated hospitals for BowelScreen and in addition it provides the full symptomatic service for patients that are diagnosed with cancer.

The service is accredited by the Joint Advisory Group on Gastrointestinal Endoscopy (JAG) whose purpose is to ensure that each

endoscopy service has the skills, resources and motivation necessary to provide the highest quality, timely, patient-centred care.

Colorectal Cancer Family Screening Clinic

Colorectal cancer can run in families, and about 5-10 % of colorectal cancer is thought to be hereditary. The team at the Mater offer family screening programmes for Hereditary Non-Polyposis Colorectal Cancer (Lynch Syndrome) and Familial Adenomatous Polyposis (FAP) to determine an individual's risk for colorectal cancer. The team follows patients who have an increased risk for polyps, colorectal cancers, gastrointestinal cancers, pancreatic cancer and related cancers. In excess of 90 families are referred annually to the screening service to evaluate cancer risk and implement a screening and cancer prevention strategy.

National Isolation Unit The Mater Hospital is the home to Ireland's National Isolation Unit. The unit is responsible for caring for patients from around the country who are suffering from both hazardous and highly infectious diseases, such as

- ▶ Tuberculosis (TB)
- ▶ SARS
- ▶ Ebola
- ▶ Avian (bird) flu
- ▶ Viral haemorrhagic fever

It also provides essential care to people who are suffering from bioterrorism-related infectious diseases and from other infections, including HIV, hepatitis B and C, meningitis, MRSA and malaria. The unit is equipped with two high specification negative pressure

rooms with HEPA filtrated individualised air-handling systems and appropriate anteroom for decontamination as outlined by the European Network of Highly Infectious Diseases.

Infectious Diseases The team at the Mater Misericordiae University Hospital also looks after a large number of patients with other infections including

▶ Hepatitis B and C

▶ Meningitis

▶ MRSA

▶ Tuberculosis

▶ Malaria

▶ HIV

The Mater’s Infectious Disease Specialists run weekly clinics with urgent patients are seen within 72 hours. There is an established a national network relationship where GPs and the hospital provides the lead in post exposure prophylaxis, which is commonly linked to HIV, where prophylactic treatment is started immediately after exposure to a pathogen to prevent infection and the development of a disease.

Hep Check: Homeless Hepatitis Check The Mater Hospital’s Homeless Hepatitis Check programme has screened almost 600 people, with 26% of people screened testing HCV positive. 73% of those were male, 38% reported either current or previous injecting drug use, and 90% had been previously diagnosed with HCV. The project was set up to establish the effectiveness of intensified screening and support for Hepatitis C (HCV) in

individuals attending homeless services in Dublin.

Attempts to engage these patients in hospital care have previously been shown to be unsuccessful. A new approach based on GP provision of long-term care for injectable drug users, of whom almost 80% are infected with hepatitis C (HCV), is being implemented. In the Hepcare project community fibroscan identifies those with advanced liver disease, with urgent referral to hospital service for Direct Antiviral treatment (DAA).

The Hep Check project is a collaborative effort between Dr Jack Lambert Consultant Infectious Diseases, Dr Steve Stewart Consultant in Hepatology, Professor Walter Cullen, Professor of Urban General Practice, UCD School of Medicine and Dr Austin O’Carroll, General Practitioner.

Health and Social Care Professionals Directorate

Speech and Language Therapy During 2018 the Speech and Language Therapy (SLT) Department saw an average of 225 patients per month, and provided 1,872 new assessments and 7,996 reviews (representing a 7.5% increase on 2017 activity). Median time from referral to inpatient seen was 0.5 working days.

Excellence in patient care necessitates parallel healthcare professional development. The SLT department is committed to continuous professional development, education and research. In 2018, 4 staff members (30% of the department) engaged in post-graduate studies

▶ Jessica Molloy, Senior SLT completed the MSc in Acquired Communication Disorders from Trinity College

▶ Jennifer Kirwan, Senior SLT commenced the second year of the Higher Diploma in Counselling and Psychotherapy, Dublin Business School

▶ Sarah Duggan, Senior SLT and Ciara Murphy, A/SLT Manager commenced MSc programmes; MSc in Older Person Rehabilitation, University College Cork and HSE Leading Care II MSc.

Dr Patricia Gillivan-Murphy, Clinical Specialist SLT was awarded an ESSD Fiberoptic Endoscopic Evaluation of Swallowing (FEES) instructor certificate recognising her extensive experience and significant contribution to FEES endoscopist training both locally and nationally. Dr Gillivan-Murphy is the leading SLT in FEES in Ireland and will be running the third Irish Association of Speech and Language Therapists (IASLT) accredited FEES Introductory Course on 1st-2nd of April 2019.

As a department, we are dedicated to Practice Education and supervised a total of 24 students in 2018 from the National University of Ireland, Galway (NUIG), Trinity College Dublin (TCD), and University of Limerick. Jessica Molloy and Jenny Kirwan, Senior SLTs/Practice Tutors in the department contribute to teaching and university examinations in NUIG and Trinity College. In addition they also presented a poster at the inaugural inter-professional education conference in the Royal College of Surgeons Ireland (RCSI) in 2018.

Chronic Cough Dr Patricia Gillivan-Murphy, Clinical Specialist SLT is leading a service initiative with the Respiratory Department in the area of chronic cough. 2017 saw an

increase in the number of patients referred by the Respiratory Team to SLT for assessment related to chronic cough and upper airway dysfunction. There is a definite need for SLT in this client group but there is currently no designated service for these patients. In response to patient need and to inform service development, Dr Gillivan-Murphy applied and was granted ethical approval to complete a pilot study. Patricia presented preliminary findings of the study at the Newcastle Voice Conference in November 2018. The pilot study aims to

▶ Develop a clinical assessment protocol for patients referred to SLT with chronic refractory cough Identify upper airway characteristics

▶ Capture the complexity of patient's presentation

▶ Inform SLT intervention and additional speciality referrals to ENT and GI colleagues

▶ Determine which assessment tools are clinically meaningful and sensitive to change. It is hoped that this work will inform service development

Cognitive Stimulation Therapy Group Emma Finch, Senior SLT and Clodhna O' Mahony, Senior OT submitted a grant application to the Dementia Post Diagnostic Grant Scheme (National Dementia Office and HSE) in 2018. Their proposal "Inpatient Cognitive Stimulation Therapy (CST) group in the Care of the Older Person Service (COTOP)" was selected as one of 18 successful applications from across the country. The grant will fund a 0.5 Therapy Assistant to facilitate the running of a CST group for patients with mild to moderate dementia on St. Anne's Ward; the Specialist Geriatric Ward.

Cross-site SLT Service The National Clinical Programme for Research Medicine (NCPRM) Model of Care (MOC) promotes a seamless transition between different care settings and effective identification and management of patients' rehabilitative needs. Interagency co-operation is an essential element of effective rehabilitation provision.

The reconfiguration of the Senior SLT post at Cappagh National Orthopaedic Hospital (CNOH) to a cross site post between the Mater and Cappagh Hospital was an exciting development in 2018. This post is in line with the NCPRM MOC and will support early intensive SLT rehabilitation in the Mater and facilitates a seamless transition of care for Mater patients accessing specialist rehabilitation in Cappagh Hospital.

Deep Brain Stimulation Service (HSCP) In 2018, the Mater Hospital was granted funding to develop an All-Island Deep Brain Stimulation (DBS) service. A Multidisciplinary Team (MDT) has been established dedicated to this All-Island DBS service. People referred to the programme undergo extensive multidisciplinary assessment to determine their suitability for this treatment option. This involves highly specialist assessment with neurology, clinical neuropsychology, physiotherapy, speech and language therapy, specialist nursing, clinical neurophysiology and neurosurgery.

Those proceeding to neurosurgery will be followed up by the MDT to adjust programming of the apparatus and to deliver therapeutic interventions to support optimal benefit from the intervention. The development of a Clinical Specialist SLT in DBS as part of the MDT is an exciting development for the department and the profession and most importantly for patients with complex

movement disorders accessing this specialist service.

Awareness Days The SLT Department actively supported and contributed to a number of awareness days in 2018. World Voice Day is celebrated around the world on 16th April with the main goals of increasing public awareness of the importance of the voice and alertness to voice problems.

The SLT department in collaboration with colleagues from primary community care organised two events to mark the day. In addition, the SLT department supported and contributed to World Head and Neck Cancer Day, Spinal Injuries Awareness Day and Disability Awareness Day.

As part of Disability Awareness Day, SLTs and SLT students engaged staff and visitors in activities to simulate the experience and raise awareness of communication disability.

Promoting Public and Staff Awareness



World Voice Day 2018



World Head & Neck Cancer Day 2018



Disability Awareness Day 2018

Audiology Clinical throughput in 2018 comprised of approximately 2,200 new pathways and 750 return consultations an increase of 2.9% on the previous year. Below is a snapshot of the departmental activities:

New Initiatives

- ▶ Neuro-Vestibular MDT Clinic Set-Up with Neurology and Vestibular Physiotherapy: MDT approach to assessment and management of challenging clinical cases

- ▶ SVUH Vestibular Pathway: IEHG-wide Service Level Agreement Development

Both initiatives contributed to strengthening our relationships with HSCP colleagues and other Mater teams as well as our Ireland East Hospital Group (IEHG) group collaborations; with ultimate improved outcomes for our patients.

Increasing awareness of hearing and balance disorders, assessment and management is core to the work of the department. In 2018 activities include

- ▶ Teaching in Basic (Jan) and Advanced (Nov) Vestibular Physiotherapy Courses organised by ISCP

- ▶ ENT team teaching on Hearing Loss and Associated Comorbidities (Feb)

- ▶ SVUH Vestibular Pathway: IEHG-wide Service Level Agreement Development

- ▶ UCC MSc in Audiology student clinical training on diagnostic audio-vestibular testing (Apr-Aug)

- ▶ Mater Dementia Education Programme (Apr & Dec)

- ▶ Teaching at GP Information Evenings (May)

- ▶ Internal CPD tutorials to the rehabilitation physiotherapy team (May)

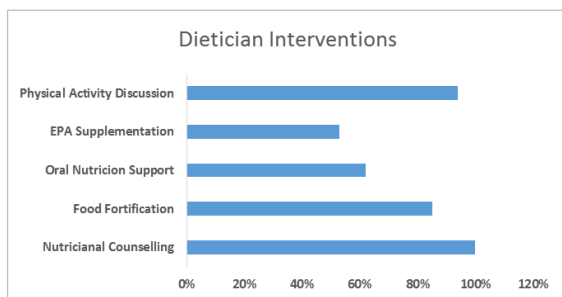
- ▶ Increase awareness of hearing impairment at the Accessibility Awareness Day (Nov)

- ▶ Case Study presentations at Vestibular Seminars organised by Dr Dara Meldrum, TCD (Dec)

- ▶ UCD Medical Students Rotations with ENT teaching (weekly tutorials on audiological aspects)

- ▶ Introduction to Hospital Life Transition Year Programme (audiology tutorials during term time)

Nutrition and Dietetics Between 2016 to 2018, there was a 29% increase in new referral consultations. The change in referral rate was different in many specialties with significant increases in Gynaecological surgery (up 190%), haematology and oncology (100%), transplant (28%) and colorectal surgery (22%). In 2018 the integration of the International Nutrition Care Process (NCP) was continued in the hospital with all inpatient dietitians using the NCP diagnosis terminology. This was implemented through staff using implementation tools, and meeting regularly to reflect on their implementation and peer review the diagnoses being assigned following patient assessment. The dietetics team hosted the American Academy of Nutrition and Dietetics led training in Nutrition Focused Physical Findings, which enables dietitians to formally diagnose “malnutrition” in line with the new international definitions of malnutrition (ASPEN and GLIM 2017 criteria). 14 staff will be trained by early 2019. Malnourished patients have higher morbidity, Length of Stay (LOS) and higher mortality. Better identification leads to targeted dietetic input.



Nutritional counselling is the cornerstone of dietetic assessments and ensures patients are meeting their macronutrient and micronutrient needs. This was completed with

100% of all new consultations. If a patient is not meeting specific dietary requirements, then food fortification can be used to modify a patient’s dietary intake. This was used in 85% of new consultations.

Complex Nutrition Related Issues 72% of new patients required intervention for additional nutrition issues. These patients have multi-focal and complex nutritional care management, which included the following

- ▶ Refeeding Syndrome
- ▶ Micronutrient Deficiency
- ▶ Texture Modification
- ▶ Fad Diets
- ▶ Pancreatic Replacement Therapy
- ▶ Renal Impairment
- ▶ Diabetes Mellitus

Suitable dietary resources have been developed for those with cancer, and nutrition related complications. This includes recipes to support cooking with fatigue, high calorie high protein information, taste changes, management of nausea, Omega 3 supplementation diet sheet, dietary management of high cholesterol etc.

Social Work Department The social work department provides high quality psychosocial support for patients and their families/carers. The team works closely with other Multi-Disciplinary Team members to encourage patient involvement in decision making around their care and support sustainable discharge plans with our Community Healthcare Organisation (CHO)

colleagues. The department works at the interface between hospital and community and provide the role of both patient advocates and complex case managers.

In 2018, over 6,000 patients were referred to the social work department, an increase of 5% on the previous year. The service supported over 700 Home Support applications and 266 Long Term Care applications. Each process involves multiple interactions with the patient, their family, MDT colleagues, external stakeholders and private care providers.

The department is committed to the ongoing education of staff and students and facilitated 4 post graduate social work students in 2018. These 14 week placements are a key component of the professional qualification for social workers and contribute significantly to the development of a skilled workforce.

The department is also working with UCD School of Social Work, Social Justice and Social Policy to establish an Erasmus programme with the School of Social Work in Malta and will be facilitating student placements in 2019. The department also supported the training of 2 Frailty Facilitators via the National Frailty Education Programme. These staff are now frailty champions within the department and the wider healthcare system within Hospital Group and Community Healthcare Organisation.

The department continues to run 2 annual Bereavement Evening for those who have had a bereavement during the preceeding 6 months. These events which allow family members to come together to reflect on their grief and learn some skills in coping with bereavement.

In line with statutory policy developments and legal changes the department undertook to

review all relevant policies to ensure our practice is adhering to legislative and policy requirements. Our policies on Child Protection and Welfare, Adult Safeguarding and Domestic Violence have been updated and standard operating procedures have been developed to support standardised practice across the department. The department continues to take the lead in the implementation of the HSE Child Welfare and Protection policy. Staff provide both informal support and advice to colleagues and we also deliver education and awareness sessions for staff as required.

During 2018 we successfully piloted a Discharge Complexity Tool within the department which will be a significant development towards the roll out of more meaningful data gathering and evaluation. The increase in the numbers of homeless people in the greater Dublin area has resulted in a concurrent increase in the number of patients seeking our services who are experiencing homelessness or at risk of becoming homeless.

The department, along with colleagues in St James Hospital, HSE Acute Hospitals and HSE Social Inclusion were successful in securing funding through Genio and the Service Reform Fund to develop and Inclusion Health Team in the hospital. This innovate project will be developed throughout 2019 and evaluated with the support of Academic colleagues in Trinity College and University College Dublin.

Conference posters

- ▶ **CF Ireland Conference**
Audit of Nutritional Complexities in people with Cystic Fibrosis post lung transplantation- Irish National Heart Transplant Centre. S Murphy. Selected for oral presentation

▶ **INDI Research Event**

Description of nutritional characteristics in patients identified at risk of refeeding syndrome and prescribed oral diet.
BGillman

▶ **ESICM annual conference**

Delivering Nutrition Targets in the ICU a quality improvement Lshanahan, MMckiernan, COLoughlin

Pathology Directorate

The pathology directorate provides local, regional and national diagnostic services in all laboratory medicine disciplines. Laboratory investigations are performed, and the results of laboratory tests are made available to patients through their clinicians or GPs.

The Mater Hospital pathology laboratory is accredited by the Irish National Accreditation Board (INAB) to undertake testing as detailed in the scope of tests listed on the Irish National Accreditation Board (INAB) website (Registration Number 232MT) in compliance with International Standard ISO 15189 and the EU blood Directive 2002/98/EC.

There are six departments, supported by central specimen reception and the pathology office

▶ **Blood transfusion** provides a routine and emergency blood grouping and compatibility testing service for surgical and medical patients and provides a stock of manufactured blood products. It includes haemovigilance and traceability functions.

▶ **Clinical chemistry and diagnostic endocrinology** provides a routine and emergency service in clinical chemistry and immunodiagnosics and involves the investigation and monitoring of endocrine, bone and reproductive disorders.

▶ **Haematology** provides a routine and emergency service in haematology and investigates haematological abnormalities. The department also provides a routine and specialised coagulation service.

▶ **Histopathology/cytopathology** provides a diagnostic histopathology and cytopathology service. The service includes BreastCheck and the symptomatic breast service and the other cancer specialties.

▶ **Immunology** provides a diagnostic service for the investigation of disorders affecting the immune system, including a multiple myeloma service, autoimmunity and rheumatic diseases testing, HIV monitoring, allergy investigations and immunochemistry.

▶ **Microbiology** provides a routine and emergency diagnostic service in the investigation of bacterial, fungal and parasitic infection. It also contributes to disease surveillance and infection prevention and control.

Cellular Pathology at the hospital is a large multi-lab service comprising Histopathology, Cytopathology, Immunohistochemistry/In-situ Hybridisation and Mortuary Services, delivering a full anatomical pathology service to in excess of 17,000 patient requests per year.

Histopathology National Quality Improvement Programme The National

Quality Improvement Programme in Histopathology (HQI Programme) was launched by the Faculty of Pathology in January 2009 in collaboration with the National Cancer Control Programme (NCCP) and Directorate of Quality and Clinical Care (DQCC). Ireland is the first country in the world that reports on national metrics in histopathology. 32 laboratories, including the Mater Hospital, participate in the programme and contribute data to the HQI Programme's dataset. The HQI Programme aims to enhance patient safety and improve patient centred care with timely, accurate and complete pathology diagnoses and reports.

The Faculty of Pathology has set evidence-based targets so that histopathology laboratories can track their performance in several key areas. Laboratories can see how they are performing compared to the national average and identify issues that need to be addressed or areas in which they are excelling. Laboratories that are performing better than average are encouraged to share their best practice approach with other laboratories, resulting in improved standards overall.

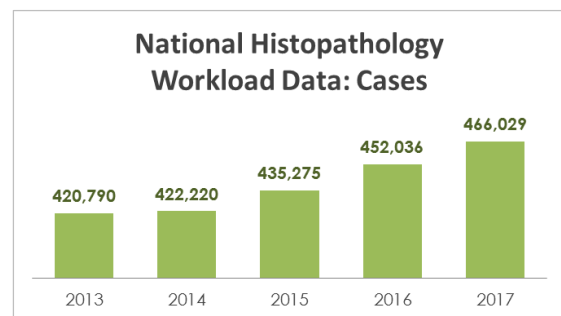
Some of the key points from the latest Annual Report include

- ▶ In the five years (2013-2017) the national volume of cases has increased by 11% and specimens examined by 18%.

- ▶ In the five years (2013-2017) the national volume of cases requiring Immunohistochemical stains have increased by 40% and the actual number of stains shows a 31% increase. Reflecting the increased complexity of diagnosis.

- ▶ The recommendation of achieving less than 1% maximum for all Histology-Cytology Amended/ Corrected reports were met in all 32 sites for all months of 2017.

- ▶ Over the past 3 years Frozen Section Correlation has increased to being sustained above the 97% Concordance Target.



Pharmacy and Medicines Optimisation Directorate

Formation of the Pharmacy and Medicines Optimisation (PAMO) Directorate July 2018

The Pharmacy Department at the Mater plays a pivotal role in the safe, effective and economic provision of pharmaceutical care to patients. The responsibilities of the Pharmacy Department in relation to patient welfare, value for money, innovation, service planning and strategic service delivery have adapted and expanded to meet healthcare demands of patients and their care. The complex organisational, regulatory, research and economic considerations of the department's workload is integrated into the activities in other hospital directorates and impacts all levels in the Mater. The need for greater cohesion between all areas involved in the delivery of patient care led to the integration of the wide-ranging responsibilities of the Pharmacy Department into the hospital Directorate structure. The Pharmacy and

Medicines Optimisation Directorate (PAMO) Directorate was established in July 2018.

“

The PAMO Directorate aims to be the foremost Hospital Pharmacy service provider in the State, delivering a positive impact on patient care and providing the foundation for Medicines Optimisation by the safe and rational use of medicines

”

Under the leadership of Professor Ciaran Meegan as Clinical Directorate Lead and Director of Strategy and Jennifer Brown as Clinical Director of Operations, the groundwork has been laid for the strategic alignment of the PAMO directorate with the hospital corporate strategic goals. The core services delivered within the directorate include Clinical Pharmacy and Medicines Optimisation; Medicines Compliance, Regulation and Logistics; Safety, Innovation and Informatics, and Pharmacy Sterile Production and Cancer Services. The PAMO Directorate brings the hospital the opportunity to advance even further in its delivery of process-driven, sustainable pharmaceutical care to Mater patients. The relationship between the PAMO Directorate and the Drugs and Therapeutics Committee (DTC) is central. The oversight provided by the DTC is an institutional priority and a key component in the provision of pharmaceutical care to patients.

The PAMO Directorate will be an advocate for patients, providing the commitment required to meet the budgetary challenges and

regulatory requirements in today's complex and evolving healthcare landscape. The PAMO works closely with patients and other directorates to optimise the use of medicines to the highest, most cost-effective and safest standards.

The Pharmacy and Medicines Optimisation Directorate is developing ambitious plans to improve the automation and technology that support medicines distribution processes within the hospital and allow expansion beyond the current capacity. An upgraded automatic robotic dispensing system along with a new, fit for purpose, electronic medication management system will enable the achievement of operational and strategic goals across the hospital.

Biosimilar Adoption In conjunction with clinical stakeholders, the PAMO Directorate led the hospital's adoption of two Biosimilars, Infliximab and Rituximab, in 2018. The processes necessitated leading the procurement process, including product selection, supply chain management and liaison with hospital management, consultant physicians, clinical nurse specialists, other nurses and patients to facilitate safe and effective implementation. The Mater have achieved 100% adoption of biosimilar Infliximab and Rituximab.

Medication Reconciliation Service Expansion HIQA define Medication Reconciliation (MR) as the process of creating the most accurate list possible of all the medications a patient is taking, including drug name, dosage, frequency and route, in order to identify any discrepancies and to ensure that changes are documented and communicated. MR is an effective strategy to reduce medication discrepancies and adverse drug events as patients move through interfaces of care. It is a patient safety focus for the World Health

Organisation (WHO), HIQA and the Department of Health and Children.

The Mater Hospital's MR Service follows WHO Guidelines. The HIQA 2016 Medication Safety Inspection report stated that the MR Service provided in the Mater Hospital was *an example of good practice*. The report also recommended 'exploring the expansion of this service to implement admission to discharge medication reconciliation across the continuum to include all patients. Given the benefits identified by the hospital regarding the medication reconciliation service *a good case for expansion of the medication reconciliation service to include all transitions of care and discharge may exist*.

The priority focus areas for the Medication Reconciliation Service for 2018 was to achieve 100% capacity for MR on admission and to progress with expansion of the MR Service to ward transfer and discharge. Achieving both of these priorities is largely resource dependent. Medicines Reconciliation (MR) Reviews increased by 17% in 2018 with a corresponding positive improvement for the safety of patients.

Patient Education Inpatients education about medicines increased by 51% in 2018 compared to the previous year driven primarily by the increased prescribing of high-risk drugs, e.g. oral anticoagulants, and the introduction of patient education for all females of child-bearing potential taking Valproate and all patients newly initiated on tuberculosis treatment 2018.

Patient Information Leaflets (PILs) are used to support the provision of patient education in relation to medication use. New hospital specific PILs were developed in 2018 for patients receiving a variety of treatments for

a) Hepatitis C and b) Tuberculosis. The newly developed PILs, and other patient related medicines information for specialities such as cardiology, endocrinology, gastroenterology, HIV, oncology/ haematology, surgery, transplantation and the use of anticoagulants, are available in a printable format on the Maternet. The 2019 HIQA Medication Safety Inspection is specifically focusing on provision of evidence based and up-to-date information leaflets when patients commence on a new medication while in hospital or at discharge. These patient education initiatives support this information provision.

Service improvements in Patient Centred

Care Maria Creed, Dispensary Services Manager, continued to lead, and promote, the use of electronic Discharge and Out-Patient Prescriptions on Patient Centre, advising staff to use the electronic version to replace the hand written prescription where legibility, traceability and security can lead to queries and delay in patients accessing timely care. Following the successful implementation of functionality for the production of printed prescriptions on Patient Centre, recent reviews highlight a consistent growth in use. There has been a 40% increase in use since January 2018. Over 4,000 prescriptions per month are being generated on Patient Centre. The process ensures that staff and patients continue to benefit from the advantages of access and speedy retrieval of prescription information.

Awards & Achievements

- ▶ Maríosa Kieran, Clinical Pharmacy Services Manager, won the Hospital Professional Awards Hospital Pharmacist of the Year Award, 2018 for her innovative approach to improving the quality of patient care and delivery models.

- ▶ Dearbhla Murphy, Senior Clinical Pharmacist, won the Hospital Professional Awards Haematology Project of the Year Award, 2018 for her investigation into how the introduction of posaconazole had influenced patient outcomes in terms of breakthrough invasive fungal infections and the financial impact of the changeover on hospital drug expenditure.

- ▶ Bríd Ryan, Aseptic Compounding Unit Manager, won the Hospital Professional Awards Oncology Excellence of the Year Award, 2018 for her extensive professional achievements, including co-ordinating the move of the aseptic compounding unit to a new facility and the introduction of CATO.



L-R Mariosa Kieran, Dearbhla Murphy & Bríd Ryan, HPA prize-winners, MMUH Pharmacy Department

- ▶ Patricia Ging BPharm, MPSI, M.Sc, FFRPS MRPharmS, Heart Lung Transplant/Pulmonary Hypertension Pharmacist and Honorary Clinical Senior Lecturer, Royal College of Surgeons in Ireland, was promoted to Honorary Clinical Associate Professor by the RCSI. This promotion is in recognition of Patricia's current post and academic attainments and her sustained and valued contribution to RCSI.

- ▶ Patricia Ging, Transplant and Pulmonary Hypertension pharmacist was an invited speaker at the meeting of the International Society of Heart and Lung Transplant (ISHLT) in Nice on the subject *Optimizing Antimicrobials in Cystic Fibrosis: What's Too Little, What's Too Much*.

- ▶ Claire Shine, Senior Pharmacist Medicines Reconciliation, Maria Murphy and Ciara Levey, Senior Pharmacists-Infectious Diseases, successfully completed their MSc in Clinical Pharmacy Practice with Robert Gordon University, Edinburgh.

- ▶ Georgina Browne, Cliona Sheehy and Anna Crotty successfully completed their Masters in Pharmacy programme graduating with Royal College Surgeons, Dublin.

- ▶ Deirdre Lenehan, Drug Safety Facilitator, led two workshops on Medication Safety at the Hospital Pharmacists Association of Ireland annual conference. At the same conference, Marie O Halloran, Senior Clinical Pharmacist led two workshops on COPD and Asthma.



Honorary Clinical Associate Professor Patricia Ging, Heart Lung Transplant/ Pulmonary Hypertension Pharmacist

Radiology Directorate

The Radiology Department at the Mater Hospital provides advanced imaging services to the patients and clinicians within the hospital. A local service is provided to GPs in the catchment area as well as a tertiary care service to hospitals within and beyond the Ireland East Hospital Group.

Radiology Directorate scanning facility consists of two MRI scanners and three CT scanners (two CT's in the main department and one CT in ED), four US scanners and two IR rooms. The main department scanners and Interventional Radiology service operates Monday to Friday 8am to 5pm with a 24/7 on call service for these modalities.

Rapid Access Clinics The Radiology Department at the Mater currently supports Symptomatic Breast Health unit incorporating the Rapid Access Clinic for Breast, this unit is second busiest unit in the country receiving on average 200 new GP referrals a week. In addition to providing a rapid access symptomatic service to new patients and patients with a history of breast cancer it provides a screening service to women in the moderate to high risk category for developing breast cancer and a surveillance service for women diagnosed with breast cancer through BreastCheck (the National Breast Cancer Screening Programme) which is located on the Mater campus. There are five radiologists subspecialised in breast imaging in the unit who together with several mammographers provide digital mammography, ultrasound, MRI and interventional biopsies and wire localizations. The Rapid Access Clinic for Prostate has also seen significant changes in the last few years driven by Magnetic Resonance Imaging (MRI) and Computerised Tomography (CT) being major diagnostic tools

for management of patients with prostate and lung cancer. Growing evidence from recent publications demonstrates a substantial benefit for MRI in detecting Prostate Cancerous lesions pre-prostate biopsy and in those who have had previous negative biopsies. This has resulted in a change in clinical practice with a resultant substantial increase in the use of MRI prostate in Prostate cancer management. There has been a 314% increase in MRI referral for prostate scanning since 2012 with a general requirement to scan within 8 weeks.

Electronic Triage of Radiology Imaging Requests

In 2018 an electronic triaging system for in-patient MRI requests on Patient Centre (the Mater's patient administrative system) commenced. An additional electronic note system was developed that allows radiology staff notes on the patient's status be read by the referring teams.

E-triage goals were

- ▶ To assign a triage status to each MRI scan request using standardised triage categories.
- ▶ To provide electronic feedback to referring teams regarding the status of their request.
- ▶ To decrease the time spent by NCHDs discussing scans with MRI radiographers and radiologists.
- ▶ To use the electronic note function to increase efficiency of communication between MRI radiographers/ radiologists and referring physicians.
- ▶ To ensure that patients with similar triage categories have similar waiting times for scan completion, thus facilitating hospital throughput.

Change Agenda

The Mater Hospital has been at the forefront of advancing healthcare for over a century and a half. Healthcare is constantly changing and providing new challenges to those delivering care. To address those challenges and to maintain and improve the care we provide, we must be always seeking out better ways of doing things. The Mater Hospital's decision to embark on an ambitious change agenda is to address these challenges and transform the care we deliver.

To support the hospital through this extensive change programmes the Transformation Office (incorporating the Mater Lean Academy) was established. The office is charged with driving forward the change agenda and implementing an array of other change management initiatives.

Transformation Office The Transformation office at the Mater Hospital supports and drives the change agenda across the hospital. It manages a number of large-scale projects relating to both un-scheduled and scheduled care. All projects have a central purpose of improving patients' experience, irrespective of whether they are directly related to frontline care or the infrastructure and processes that support the delivery of care.

The ethos of the office is underpinned by the principle of collective leadership. It seeks to build organisational capability and capacity for change from the ground up through investing in training and development of staff. Including facilitating the introduction of an executive leadership programme to address the ever-changing needs of managers in today's healthcare environment. The Transformation Office encompasses the Mater Lean Academy which to date has provided training to over 1,000 healthcare professionals, empowering them to employ lean principles in leading change at the frontline.

UCD and Mater Lean Academy The mission of the UCD and Mater Lean Academy programmes are to use the principles of Lean Six Sigma management and science to improve the quality of the healthcare experience for patients, their families and staff. The programmes offers quality improvement projects that incorporate consulting, coaching, and training services for all staff involved in healthcare delivery. The project work adopts a person-centred approach to deliver process improvement in a healthcare environment and offers a suite of Lean Programmes in Healthcare including

▶ **Fundamentals of Lean for Healthcare (White Belt)** Intensive One-Day introduction to Lean Six Sigma for Healthcare

▶ **Professional Certificate in Lean Six Sigma for Healthcare (Green Belt)** Understanding the principles and philosophy of Lean and apply them in healthcare organisation. Six Month, part time programme

▶ **Graduate Diploma in Lean Six Sigma for Healthcare (Black Belt)** Development of process improvement, leadership, research and project management skills to drive the changes necessary for a successful Lean healthcare transformation within healthcare organisation. 1-year part time programme.

What is Lean Healthcare? Lean means using less to do more. Lean thinking is not typically associated with healthcare, where waste of time, money, supplies, and goodwill is a common problem. But the principles of Lean management do, in fact, work in health care in much the same way they do in other industries. Many healthcare organisations are successfully using Lean thinking to streamline processes, reduce cost, and improve quality and timely delivery of products and services. Lean principles can have a positive impact on productivity, cost, quality, and timely delivery of service. While sceptics are right when they say patients are not cars, healthcare is, in fact, delivered in extraordinarily complex organisations, with thousands of interacting processes, much like the manufacturing industry. Many aspects of the Toyota Production System and other Lean tools therefore can and do apply to the processes of delivering care.

6th Annual Lean Symposium Minister of State for Mental Health and Older People Jim Daly opened 6th Annual Lean Symposium in the Fitzgerald Debating Theatre on Thursday 29th November.



L-R Gordon Dunne, CEO Mater Hospital; Minister Jim Daly; Aileen Igoe, Adjunct Assistant Prof UCD SNMHS; Sean Paul Teeling, Assistant Professor and Lean healthcare programme director UCD SNMHS; Prof Gerard Fealy, Dean and Head of School UCD SNMHS

The conference keynote was delivered by Mark Graban, international Lean consultant, author and speaker. Other speakers included Lorna Peelo-Kilroe, HSE Lead for Person-centred Cultures and Prof Peter Hines, Co-founder of the Lean Enterprise Research Centre at Cardiff Business School. Presentations were also delivered by UCD Lean graduates on continuing process improvement projects in Our Lady's Hospital for Sick Children Crumlin, Mater Hospital, National Orthopaedic Hospital Cappagh, St Luke's Hospital Kilkenny, Louth County Hospital and Sligo University Hospital, with 18 hospitals displaying Scientific Posters throughout the day.

The Symposium, held annually with UCD and the Mater Hospital's Lean Academy, celebrates the work of graduates of the UCD Lean Six Sigma (LSS) healthcare programmes. Healthcare staff from 50 healthcare

organisations have undertaken the programme to date. This is the first Lean Six Sigma (LSS) healthcare programme nationally, using both LSS methodologies and person-centred approaches to transformation in diverse healthcare environments.

The goal is to improve not just outcomes, but patient and staff experiences of care delivery. Students of the programme have delivered substantive and enduring change and have won seven national healthcare awards.

IBEC Lean Leadership Programme The Mater Lean Academy hosted the two days of the Irish Medtech Association (IBEC) Skillnet Driving Operational Excellence through Lean Leadership programme in October 2018 for the third year running.



Delegates from various companies including Abbott Ireland Diagnostics Division, Boston Scientific and Cook Medical were in attendance to learn about the Mater Hospital's Lean Six Sigma programme and undertake an observational study of the Hospital's Hip Fracture Pathway.

Participants received clinical presentations to understand the context and critical nature of the injury, particularly within the frail elderly population and they were brought through key data and process steps to understand the

pathway as it operated before any intervention.

Delegates then had the opportunity to walk the patient journey through the Emergency Department and observe for themselves the complex environment that existed in the treatment of these patients.



Education

The Mater's academic partnership with University College Dublin goes back to the foundation of the hospital, covering undergraduate and postgraduate programmes and in recent years the development of the lean programme in healthcare, in the form of the Mater Lean Academy. The Mater continues to work closely with UCD to provide high-class undergraduate, postgraduate and specialist training programmes in surgery, medicine, nursing, physiotherapy and radiography.

The Mater also works closely with other institutions including Trinity College and Dublin City University and provides clinical placements and internships to hundreds of students every year, including pharmacists, nurses, clinical therapists, radiographers, psychologists, podiatrists' audiologists and lab technicians.

Undergraduate Education

The Mater is the primary location for clinical education for the final two years of the UCD undergraduate Medicine Programme and hosts approximately 250 undergraduate students each year for training in medicine and surgical specialities. The medicine and surgery curriculum is coordinated through the UCD team at the Catherine McAuley Centre

and includes rotation through the Mater, Cappagh National Orthopaedic Hospital, Beacon Hospital, Midlands Regional Hospital Mullingar, Wexford General Hospital, St Michael's Hospital and St Columcille's Hospital.

Student facilities at the Mater Hospital were further expanded in 2014 with the opening of the UCD Mater Hospital Education and Training Centre on the 3rd floor of the historic original Mater building. This represented a significant investment by UCD in sustaining the mission of education and scholarship intrinsic to the ethos of the Mater, UCD and the Sisters of Mercy. The restoration of an in-hospital "residence" area for doctors in training has further integrated our students into the hospitals campus, culture and heritage.

Postgraduate Education

The Postgraduate Medical Centre, located within the Catherine McAuley Centre, provides high quality, dynamic and innovative education programmes for consultants, NCHD's and the North Dublin Faculty of the Irish College of General Practitioners. The centre strives to exemplify the Mater Hospital's commitment to outstanding training for medical professionals.

The centre plays a key role in providing for the training needs of NCHD's and facilitates the professional development of consultants within the hospital and beyond by developing a programme of continuing medical education relevant to medical staff in the Mater Hospital including in house multidisciplinary meetings and with regular teaching sessions designed for Interns and SHOs as well as providing education sessions to members of the North Dublin ICGP. All meetings overseen by the Centre of Postgraduate Medical Education are recognised and accredited by governing bodies such as RCPI, RCSI and ICGP.

Nursing Education

The Mater Hospital has been providing the highest quality nursing training since 1891. Nurses are offered a wide range of courses and subjects with the Centre for Nursing Education providing for both undergraduate and postgraduate education with specialist postgraduate programmes and professional development.

Centre for Nurse Education Through the Centre for Nurse Education (CNE) and clinical placements on the Mater Hospital campus, the Mater provide a wealth of clinical expertise and rich clinical learning opportunities for nurses. Through THE close partnership with UCD and DCU we provide a variety of postgraduate and undergraduate nursing programmes. Our central location on the hospital campus helps to ensure that our courses reflect and respond to current patient and service needs.

The Centre is a purpose-built building with a central focus on the provision of continuous professional nursing education, specialist nurse education, in-service days and professional education courses for registered

general nurses and other health care professionals.

Specialist Postgraduate Nursing Programmes

The Centre offers many specialist postgraduate programmes facilitated by our specialist experts and run in partnership with UCD. These programmes are 1 year in duration and include

▶ Graduate Diploma Critical Care Nursing: Cardiovascular Nursing

▶ Graduate Diploma in Cancer Nursing

▶ Graduate Diploma in Critical Care Nursing: Intensive Care

▶ Graduate Diploma Peri-operative Nursing

▶ Graduate Diploma Emergency Nursing (Adult)

▶ Graduate Diploma Diabetes Care

▶ Graduate Diploma Pain Management

Mater Lean Academy

See pages 50-51 for information.

Graduation 2018 for 44 Professional Certificate students from multiple disciplines across 15 Hospitals and Healthcare organisations was held on the 6th December in the new Pillar Centre.

Academic Hub

On the 9th November the Pillar Centre for Transformative Healthcare was officially launched in the Mater Misericordiae University Hospital. The new centre complements existing educational facilities

within the hospital and in UCD by providing a flexible, interdisciplinary educational space, located within the hospital environment. The centre focuses on supporting practical skills training, simulation training and team-based, interdisciplinary learning.

The Pillar Centre for Transformative Healthcare is situated in the old ICU on level 3 of the Misericordiae wing and has been completely refurbished for purpose, with the capacity to facilitate up to 400 users over five teaching rooms.



Research

Shaping the future of healthcare through research and innovation

The Mater Misericordiae University Hospital has a strong track record of delivering high quality research that delivers real and meaningful impact to its patients and to healthcare generally. Since 1852 we have worked hand in hand with our partners in UCD to deliver the very best clinical research and innovation as well as in education and training. In fact, UCD has been ranked in the top 100 globally for pre-clinical, clinical and health sciences, in no small part due to its partnership with the Mater Hospital.

The Mater's commitment to academic medicine is encompassed in the vision and values of the organisation and specifically called out in Strategic Goal 3 which commits *to enhancing our education, research and innovation capability and profile.*

The evolution of the Ireland East Hospital Group into an Academic Health Science Centre, with our academic partner University College Dublin, will only enhance the focus on research in the coming years. The creation of

a Research Directorate within that structure will provide greater focus and support on research.

Highlights of the Year

Hospital Knowledge Transfer Office In May 2018 the Mater Misericordiae University Hospital, St Vincent's University Hospital and University College Dublin established Ireland's first hospital knowledge transfer (KT) office.

The establishment of the office supports the development of the commercial potential of the research outputs emerging from both hospitals and seeks to extend the reach of their medical advancements to a greater number of patients worldwide. The expertise of the Knowledge Transfer office will protect any resulting intellectual property (IP), assess commercial potential, and where appropriate licence this IP to life science companies or create new start-up companies to bring the innovations to market.

The KT offices is led by Dr Ena Walsh, UCD's life sciences knowledge transfer expert, who will provide a wealth of resources and advice to clinicians to enable the market potential of their innovations to be fully realised.

The creation of UCD’s Knowledge Transfer Office at the Mater and St Vincent’s will provide robust support structures for clinicians in revealing the true potential of these innovations and increasing patient access to innovative healthcare.



The new office will accompany the ongoing quality health research that is rooted within several centres at both hospitals, including the UCD Clinical Research Centre (CRC) which sits across both the Mater and St. Vincent’s, the Education and Research Centre at St. Vincent’s and the Clinical Trials Research Unit, at the Mater.

Establishment of the IEHG-UCD Research Directorate

The role of the Research Directorate is to underpin the development of the IEHG-UCD Academic Health Science Centre (AHSC) by developing a programme of leading edge Clinical and Translational Research. The Research Directorate expands the UCD Clinical Research Centre (CRC), which has already demonstrated significant success

as a centre operating across multiple institutions and supporting compliant research of the highest impact.

The Research Directorate’s mission is to improve the health of the nation by ensuring that novel interventions are developed, evaluated and implemented in routine clinical practice. This ambitious goal is being delivered by creating a supportive environment for our patients and investigators. Since its launch in mid-2018, the research directorate has been focused on 3 major areas

- ▶ Ensuring excellence
- ▶ Enabling investigators
- ▶ Benefitting patients

Academic Health Science Centres (AHSCs) have a crucial role to play in converting new knowledge into a range of innovative products and services for patient benefit. Through their strategic focus on innovation and knowledge translation, AHSCs can ensure that the health system remains accessible and flexible and can rapidly adapt to changing health needs. The development of our research programme will ensure significant benefits for patients including

- ▶ Better outcomes for patients
- ▶ Improved quality of life
- ▶ Avoidance of unnecessary and sometimes costly treatment
- ▶ Access to novel treatments

Launch of INViTE VTE Research Network In September, the Minister for Business, Enterprise & Innovation Heather Humphreys officially launched INViTE, the Irish Network for VTE Research. A patient-focused organisation, INViTE was founded by the Chair of the IEHG VTE Committee, Dr Fionnuala Ní Áinle (Consultant Haematologist), and aims to research innovative ways of improving the diagnosis, treatment and prevention of Venous Thromboembolism (VTE) or blood clots. The launch coincided with the 4th Annual Conference of VTE Dublin which took place 13-14 September.



Opening of the UCD Centre in Translational Oncology (UCTO) 21st -22nd September marked the official launch of the UCD Centre in Translational Oncology (UCTO), a collaboration between the university and IEHG's Cancer Clinical Academic Directorate (CaCAD).



The event featured a number of leading international cancer researchers as well as showcasing local Irish research initiatives across a range of cancer types. The keynote speaker was Dr Marc Ladanyi, Attending Pathologist and Chief of the Molecular Diagnostics Service at Memorial Sloan Kettering Cancer Center (MSKCC), New York.

Health Systems Research The *Collective Leadership and Safety Cultures (Co-Lead)* programme is a five-year research project, funded by the Health Research Board and Health Service Executive, that aims to support quality and safety cultures and positively impact patient care through the development of a new model of collective leadership that is associated with effective team performance in healthcare.

A programme for healthcare teams has been developed through a co-design process involving the research team in UCD, healthcare professionals and patient representatives. The team programme includes a range of components, including foundational elements targeting enhanced team performance and patient safety awareness, and more advanced components targeting specific aspects of team performance, safety culture and collective leadership.

Over the past year, the research team have been working with four teams in the Ireland East Hospital Group to test the programme and explore its impact on safety culture, team performance and leadership in the team. The teams include an acute care team, a surgical team, a care of older persons team and a cross-hospital team. These four teams are helping us to test the programme to explore what components work best for teams, to what extent, and why. The plan is to roll out the programme in 2019 to the Mater

Misericordiae University Hospital and St. Vincent's University Hospital. Co-Lead research team member and PhD candidate Una Cunningham who received the HSE Open Access Award in the Acute Hospitals category for her paper on effective team interventions in the acute care context.

Psychological Safety in Healthcare Teams

Roisin O'Donovan (PhD candidate) is working with Prof Eilish McAuliffe (Prof of Health Systems) and Paula Lawler (IEHG Group Director of Human Resources) to design an intervention to improve psychological safety within healthcare teams. Psychological safety has been defined as the shared belief held by team members that they are safe for taking interpersonal risks, such as speaking up and sharing innovative ideas.

Fostering psychological safety within healthcare teams is critical to maintaining and encouraging team learning, creativity and team performance. Based on a review of the literature and through working closely with a case study hospital, Roisin has adapted measures of psychological safety for use within healthcare teams. Those measures will now be used to gain a more in-depth understanding of psychological safety within case study healthcare teams. This work will inform the next stage of this research, where researchers and healthcare professionals will collaborate to develop an intervention to improve psychological safety within healthcare teams.

Promoting Assisted Decision-Making in Acute Care Settings (PADMACS) The PADMACs project aims to co-design an educational resource for healthcare professionals that will support them to understand and practice assisted decision-making with older patients in an acute setting. The study is funded by the Health Research Board under an Applied

Partnership Scheme. It involves collaboration between UCD Health Systems researchers, the Royal College of Physicians Ireland as well as geriatric multidisciplinary care teams in the Mater Misericordiae and St Vincent's University hospitals. The Alzheimer's Society of Ireland and Family Carers Ireland are partners in the project. A review of the international evidence has been completed and a co-design, participatory learning and action method is being adopted for the game development. The co-design process is scheduled to commence in June 2019.

The findings from the review were presented at the Irish Gerontological Society Conference in September 2018, the National Patient Safety Conference in October 2018 and the Trinity Health and Education International Research Conference in March 2019. Papers related to this work are currently under review.

6th Annual Lean Symposium and Scientific Posters UCD School of Nursing, Midwifery and Health Systems (SNMHS) was delighted to host the 6th Annual Lean Symposium in the Fitzgerald Debating Theatre on Thursday 29th November. The Symposium, held annually with UCD and the Mater Lean Academy, celebrates the work of graduates of the UCD Lean Six Sigma (LSS) healthcare programmes. Healthcare staff from 50 healthcare organisations that have undertaken the programme to date. This is the first LSS healthcare programme nationally, using both LSS methodologies and person-centred approaches to transformation in diverse healthcare environments. The goal is to improve not just outcomes, but patient and staff experiences of care delivery. Students of the programme have delivered substantive and enduring change and have won seven national healthcare awards.



L-R Gordon Dunne, CEO Mater Hospital; Minister Jim Daly; Aileen Igoe, Adjunct Assistant Prof UCD SNMHS; Sean Paul Teeling, Assistant Professor and Lean healthcare programme director UCD SNMHS; Prof Gerard Fealy, Dean and Head of School UCD SNMHS.

The Symposium was opened by Jim Daly, Minister of State at the Department of Health with special responsibility for Mental Health and Older People, who also presented the prizes for Scientific poster 2018 to winners Cappagh Hospital and the Beacon Hospital. Conference keynote was delivered by Mark Graban, international Lean consultant, author and speaker, with other session keynotes by Lorna Peelo-Kilroe, HSE Lead for Person-centred Cultures and Prof Peter Hines, Co-founder of the Lean Enterprise Research Centre at Cardiff Business School.

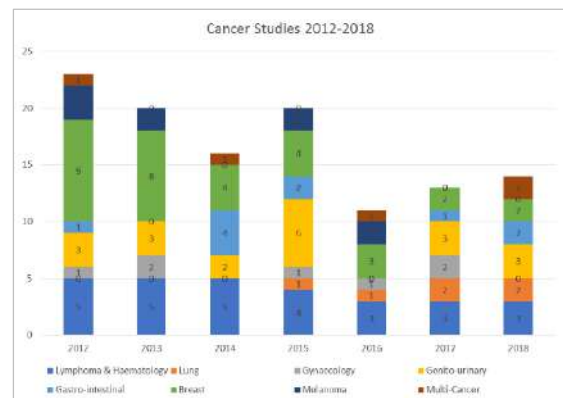
Oncology Research

The Clinical Trials Research Unit (CTRU) at the Mater campus was established in 2000 under the direction of Prof John McCaffrey. The Mater Campus incorporates Mater Misericordiae University Hospital and Mater Private Hospital. Cavan General Hospital is a satellite Oncology/Haematology Centre of the Mater Misericordiae service.

The CTRU is a department within the Cancer and Surgery Directorate of the Mater Hospital and is part of its governance structure. The

CTRU manages all oncology and haematology clinical trials for the hospital and includes patients from the Mater Private Hospital in those trials. The team of highly experienced Principle Investigators consists of four consultant oncologists and four consultant haematologists.

The team have a high study accrual rates across a wide variety of tumour types most notably in Breast, GU, Lung, Lymphoma, Gynaecological malignancies, Gastro-intestinal and Melanoma. There is a clear process in place which accepts patients for Clinical Trials from other regional hospitals and a well-established relationship with international collaborative research groups and translational collaborations at UCD and Royal College of Surgeons in Ireland.



Next Generation Sequencing and Cancer Care

The benefits that Next Generation Sequencing can bring to cancer care were evident last year in a case of an ovarian cancer patient. The research project was part of the Cancer Clinical Academic Directorate to more closely integrate patient care and research and was carried out in collaboration with the newly formed Genomics Directorate.

The research project focused on the development of Next Generation Sequencing and Digital PCR platforms as non-invasive tools to monitor and to predict response to

chemotherapy in high-grade serious ovarian cancer. One of the first patients enrolled on the research project was a 38-year-old lady with a history of stage IV low grade serous ovarian cancer (LGSOC), who developed further disease progression and required another treatment option.

A whole exome sequencing (WES) was carried out on a number of surgical specimens and also from biopsies of her recurrent disease. The group identified a novel targetable BRAF mutation D594G. The team would not have been able to identify this mutation using a panel-based assay which highlights the benefit of WES and integrated research/clinical collaboration. The bioinformatics pipeline, developed by UCD based bioinformaticians, meant the turnaround time from sequencing to final target identification was 3 days, with a multidisciplinary decision on further treatment options reached in less than 2 weeks.

Health and Social Care Professions

In September 2018, the SLT department presented a total of 5 research posters at the European Society of Swallowing Disorders (ESSD) Congress in Dublin (<https://www.essd2018.com/>).

Research presented included nurse-led swallow screening in acute stroke, pharyngeal dysphagia in patients with chronic refractory cough, dysphagia in Parkinson's Disease (a joint MMUH/primary care SLT presentation), the SLT experience of the Frailty Intervention Therapy Team (FITT) (awarded poster of merit), and a 3 year review of the SLT service in heart and lung transplant. The Mater SLT and Dietetics Departments participated in a

multi-centre project in 2018 developing standardised guidelines on the thickening of supplements. This quality improvement initiative was also presented at the conference.

Pharmacy and Medicines Optimisation Research

Antifungal Prophylaxis Research The prophylactic antifungal agent administered to patients with Acute Myeloid Leukaemia (AML) and Myelodysplastic Syndrome (MDS) changed from itraconazole to posaconazole in November 2014. Following this change in practice, Dearbhla Murphy, Senior Clinical Pharmacist, conducted research entitled *Clinical Effectiveness of Posaconazole as Antifungal Prophylaxis in Acute Myeloid Leukaemia/Myelodysplastic Syndrome: a Retrospective Cohort Study at the Mater Misericordiae University Hospital*. This project aimed to investigate the impact of this change in prescribing practice in terms of suspected Invasive Fungal Disease (IFD) rates and antifungal expenditure.

All AML/MDS patients treated with intensive chemotherapy two years pre and post the introduction of posaconazole was retrospectively reviewed. This study found that the use of posaconazole prophylaxis for AML / MDS patients has led to a significant reduction in the incidence rate of suspected IFD.

When total hospital expenditure on antifungals for AML / MDS patients is considered, the high cost of posaconazole prophylaxis is off-set by the decreased use of treatment antifungals. As IFD is associated with prolonged hospitalisation, a full economic review would have to incorporate

all hospitalisation avoidance costs and community drug costs.

HIV Research An MSc study entitled *Exploring the Attitudes of HIV-Positive Patients on Single-Tablet Antiretroviral Regimens Towards Generic De-Simplification* was carried out in the Infectious Diseases Pharmacy Service in 2018. This study showed a willingness by patients to accept an increase in pill burden if it results in a benefit to society and/or overall to the treatment of HIV.

The research was augmented by a HIV patient education initiative to facilitate the switch of current patients to a generic anti-retroviral (ARV). The initiative enabled 100% of applicable patients to confidently switch to the generic alternatives. The resultant introduction of three high usage generic anti-retroviral agents resulted in cost savings for the HSE and a reduction in hospital expenditure.

The PAMO roles in the implementation of ARV generic switches were

▶ Lead for the requisite procurement processes and product selection.

▶ Leading the implementation of generic ARV use. Implementation necessitates liaison with the Consultant physicians, clinical nurse specialists, other nurses, Pharmacy Department staff and patients.

▶ Development of Patient Information leaflets for patients switching treatment. All patients were verbally counselled by a pharmacist to communicate the change.

▶ Monitoring the logistics and financial impact of implementation, and responding to clinical queries on the process.

▶ Continued reassurance to all stakeholders, including patients, of the safety and efficacy of the ARV generic options.

Other research

▶ An Exploration into a Pharmacist-Led Medicines Reconciliation Service in an Acute Hospital Setting-Claire Shine, Senior Clinical Pharmacist.

▶ An Observational Review to Evaluate the Appropriateness of Stress Ulcer Prophylaxis Continuation in Cardiothoracic Patients Post Intensive Care Unit Discharge-Maria Murphy, Clinical Pharmacist.

▶ Poster publications from several members of the department were selected for presentation at the Hospital Pharmacists Association of Ireland annual conference. Gráinne Johnston, Senior Pharmacist-Aseptic Compounding Unit, received second place in the research category, for her poster An Observational Review of Unintentional Medication Errors Occurring During Transfer from Critical Care to the General Ward Level.

Stroke Clinical Trials Network

Stroke is the second leading cause of death in the world, leading cause of new disability, and a major cause of dementia and health costs. Stroke Research Networks have been established in the UK, North America, and Australia, leading to improvements in stroke treatments.

In March 2016 the Health Research Board's Stroke Clinical Trial Network Ireland (HRB-SCTNI) was launched. The Network is led by Professor Peter Kelly and based at the Mater

UCD campus and brings together Irish clinical scientists, healthcare teams, and patients, linking them with global experts in the field of stroke research.

The Network will give Irish patients access to new treatments with the potential to prevent stroke, or to improve emergency treatment and recovery after stroke. In the Network, Irish researchers and healthcare teams

- ▶ Participate in international trials of new treatments for emergency care, prevention, and recovery after stroke
- ▶ Lead a new Irish and international clinical trial (CONVINCE) to investigate if low-dose colchicine treatment improves prevention of heart attacks and second stroke following a first stroke.
- ▶ Provide training, education, and mentorship for Irish doctors, nurses, and therapists in how to perform safe high-quality clinical trials
- ▶ Work with patients and patient representative groups to better understand their needs for new treatments for stroke

The Project Office is based within the UCD Neurovascular Research Unit, at the Clinical Research Centre at the Mater Hospital.

The Neurovascular Research Unit performs epidemiological research to better understand stroke frequency, risk, and outcomes. It also conducts imaging studies to improve identification of patients at highest risk of first and multiple strokes. These patients can then be identified as those most likely to benefit from intensive treatment to prevent stroke.

Network Trials

Convince

(COLchicine for preventioN of Vascular Inflammation in Non-CardioEmbolic stroke)
A randomised clinical trial of low-dose colchicine for secondary prevention after stroke.

Therapy area

Stroke prevention

Rationale

Inflammation of atherosclerotic plaque is an important contributor to plaque rupture, leading to stroke and heart attack. Treatments which inhibit inflammation may prevent second stroke, heart attack, and death in patients after first stroke or transient ischaemic attack (TIA)

Design

Prospective, Randomised Open-label, Blinded Endpoint assessment (PROBE) controlled clinical trial. This is a Phase 3 trial to compare low-dose colchicine (0.5mg/day) plus usual care, to usual care alone, to prevent recurrent ischaemic stroke and coronary events after non-cardioembolic stroke and TIA.

Main eligibility criteria

Written informed consent; Age \geq 40 years; Stroke/TIA \geq 72 hours since onset and \leq 28 days prior to randomisation; Stroke – disability of \leq 3 on Modified Rankin Score (mRS) or High Risk TIA(ABCD2 \geq 4); eGFR \geq 50 ml/min

ESCAPE-NA1

Safety and Efficacy of NA-1 in Subjects Undergoing Endovascular Thrombectomy for Stroke

Therapy area

Acute Stroke

Rationale

The ESCAPE-NA-1 study is designed to determine the safety and efficacy of the neuroprotectant, NA-1, in reducing global disability in subjects with major acute ischemic stroke (AIS) with a small established infarct core and with good collateral circulation who are selected for endovascular revascularization.

Objective

To determine the efficacy of the neuroprotectant, NA-1, in reducing global disability in subjects with major acute ischemic stroke (AIS) with a small established infarct core and with good collateral circulation selected for rapid endovascular revascularization.

Trial configuration:

A Phase 3, randomized, multicentre, blinded, placebo-controlled, parallel group, single-dose design.

Trial configuration

A Phase 3, randomized, multicentre, blinded, placebo-controlled, parallel group, single-dose design.

TEMPO-2

A randomized controlled trial of TNK-tPA versus standard of care for minor ischemic stroke with proven occlusion.

Therapy area

Acute Stroke

Rationale

Patients with minor stroke symptoms (NIHSS ≤ 5) who have an M2 or more distal occlusion of a major brain artery and are at high risk of deterioration and disability. Thrombolytic (clot-buster) drugs such as tenecteplase may re-open occluded arteries and improved outcomes in such patients.

Design

A Phase 3, prospective, randomized controlled, open-label with blinded outcome assessment (PROBE) trial.

Objective

To investigate whether tenecteplase (TNK-tPA) has benefit and is safe for treatment of minor ischemic stroke with proven arterial occlusion.

Treatment

Up to 1274 male and female adult patients will be randomized to TNK-tPA or standard care. The trial involves one treatment delivered acutely with a 90-day follow-up period.

ELAN

Early Versus Late Initiation of Direct Oral Anticoagulants in Post-ischaemic Stroke Patients with Atrial fibrillation.

Therapy area

Acute Prevention

Rationale

Direct oral anticoagulants (DOACs) are highly effective for secondary stroke prevention in patients with an acute ischaemic stroke and atrial fibrillation (AF), but DOACs were never initiated <7 days after stroke onset in recent trials. The ELAN trial will determine the net benefit of early versus late initiation of DOACs in patients with acute ischaemic stroke related to AF.

Objective

The main objective is to estimate the net benefit of early versus late initiation of DOACs in patients with acute ischaemic stroke related to AF.

Trial configuration

A phase III prospective Randomised-controlled, Two-arm, Assessor-blinded Trial.

ETNA-AF

Non-interventional study on Edoxaban Treatment in routine clinical practice for patients with non valvular Atrial Fibrillation.

Therapy area

Acute prevention

Rationale

Edoxaban was recently approved in Europe for the prevention of stroke and systemic embolism in adult patients with atrial fibrillation with one or more vascular risk factors. Despite positive data from large clinical trials, Phase 4 'real-world' information is needed to further understand the safety and efficacy of edoxaban in routine clinical practice.

Objective

The primary objective of ETNA is to collect and evaluate Phase 4 real-world safety data on bleeding and other adverse events and cardiovascular and all-cause mortality in edoxaban-treated patients with atrial fibrillation.

Design

Real world data of safety and outcomes of edoxaban-treated patients in routine clinical practice will be collected and evaluated in 13,100 patients, treated by specialized and non-specialized physicians in hospitals and office-based clinical settings.

HIV Molecular Research Group (HMRG)

The HMRG, based on the Mater Misericordiae University Hospital campus, coordinates international, collaborative, translational research in HIV. The group comprises researchers with laboratory, statistical and clinical research expertise and is funded through a number of streams including Science Foundation Ireland, the Health Research Board and several industry supporters.

The group's research focuses around four principal themes

► **Models of HIV detection** The Mater-Bronx Rapid HIV Testing Project M-BRiHT, involves collaborations between UCD, MMUH and the Jacobi Medical Centre in the Bronx, New York, and aims to increase early detection of HIV, a core strategy to reduce onward HIV transmission. M-BRiHT combines rapid HIV testing with novel, computer-based video counselling and offers unselected HIV screening to attendees to the Mater Emergency Department. Sponsored by UCD and funded by Gilead Sciences, M-BRiHT launched in September 2012 and has already recruited over 4,000 subjects.

► **Bone disease in HIV** Low bone mineral density and osteoporosis is common in those with HIV. The HMRG coordinates a number of international collaborative projects to define the natural history and pathogenesis of bone disease in HIV, including the establishment of the HIV UPBEAT cohort, the largest international prospective cohort of HIV positive and negative subjects (N=484). With funding from the Health Research Board and GlaxoSmithKline.

► **Cardiovascular disease (CVD)** is also increased in HIV. The Reverse Cholesterol Transport Study (RCTS), co-funded by the EU through the European AIDS Treatment Network (NEAT) and Science Foundation Ireland is exploring mechanisms of dyslipidaemia in HIV. RCTS expands on early work by HMRG published in the Journal of Infectious Diseases in 2012 on mechanisms of increased CVD in HIV and is recruiting 100 subjects with HIV at Mater and the Chelsea and Westminster Hospital in London.

► **HIV Immunology** Through the Mater ID Cohort Project, the HIV Immunology Study, supported by a number of industry partners aims to explore additional tests that better reflect and predict immune responses to antiretroviral therapy. This study, in collaboration with Rush University Medical Centre in Chicago, has recruited over 200 subjects.

Research Governance

Research Governance is the framework that enables healthcare organisations to

► Approve and authorise the research activity that takes place

► Ensure that the research conforms to relevant institutional procedures and policies, relevant legislation and appropriate standards

► Ensure that the research is of sufficient quality and that the rights, dignity, safety and wellbeing of all those involved are protected

Research Governance is essential to protect research participants, to ensure quality and

safety of the research activity, to minimise risk and to promote research culture and good practice. Research governance can be divided into three categories

▶ **Institutional oversight and approval**
This is the responsibility of the hospital

▶ **Research Ethical Approval** This is the responsibility of the Research Ethics Committee (REC)

▶ **Governance of the Research Study** This is the responsibility of the sponsor

UCD Clinical Research Centre (Research Directorate)

The Research Directorate (UCD Clinical Research Centre (CRC)) underpins the development of the IEHG Academic Health Science Centre (AHSC) by developing a programme of leading edge Clinical and Translational Research. The UCD Clinical Research Centre at the Mater Hospital was officially opened in April 2006. It forms part of a network across UCD, St Vincent's University Hospital, National Maternity Hospital, Holles Street and the Mater Hospital.

The mission of the Research Directorate is to improve the health of the nation by ensuring that novel interventions are developed, evaluated and implemented in routine clinical practice. The Research Directorate is achieving this ambitious goal by creating an environment which is supportive of our patients and investigators who are engaged in research.

The UCD Clinical Research Centre (CRC) provides the governance and structure for the

majority of research activity at the Mater Hospital. The CRC's aims are to discover ways to improve medical care and to establish new treatments for patients who are living daily with chronic illness. Oncology and haematological clinical trials are catered for by the Clinical Trials Research Unit (CTRU).

Oversight and Governance The UCD CRC is led by Dr Peter Doran and reports to the Head of UCD School of Medicine, through the Head of Clinical Pharmacology. In line with best practice and recognising the complexity of the organisation and the importance of its function, a number of groups contribute to the oversight and management of the CRC

CRC Strategic Advisory Board This UCD CRC Strategic Advisory Board, chaired by an external senior academic, plays a major role in advising the CRC strategy by completing annual reviews of the Centre's activities and finances. The committee includes representatives of external clinical research facilities, industry and patient organisations. **CRC Executive Committee:** The UCD CRC Executive Committee is chaired by the Head of Clinical Pharmacology and includes UCD CRC directors and research leaders. The CRC Executive Committee is responsible for overall leadership and governance of the Centre and meets quarterly.

CRC Management Committee The UCD CRC Management Committee oversees the general management of the centre and is chaired by the CRC Director. The Committee deals with all operational activities of the Centre and reviews and approves all items relating to the ongoing functions of the CRC, including the review of access requests, SOPs, work instructions and strategic projects. The Committee meets monthly and is the primary operational and management group of the Centre.

CRC Facilities Groups The management and development of the CRC’s facilities and physical infrastructure are coordinated through Facilities Management Groups at St Vincent’s University Hospital and Mater Misericordiae University Hospital. The groups report to the UCD CRC Management Committee.

Research Ethics Committee

The Research Ethics Committee is designed to protect patients and staff involved in research studies and to ensure quality and value to the wider community of all research conducted at the hospital. All clinical research conducted in the Mater Hospital needs to be submitted for review by the committee to ensure that it is in compliance with the Declaration of Helsinki, Irish law and European Union (EU) law.

Research Directorate (Clinical Research Centre)

Clinical Infrastructure Core research infrastructure has been created which support clinical investigations at Mater Misericordiae and St Vincent’s University Hospitals. The clinical research infrastructure includes

▶ Eight out-patient interview rooms for patient examination and tissue collection

▶ Four procedure rooms for more complex patient phenotyping

▶ An endoscopy suite with recovery room facilities for patient’s post-procedure

▶ DEXA Scanner with full body composition analysis capabilities

▶ Climate-controlled storage facilities for Investigational Medicinal Product materials

Quality and Regulatory Systems Throughout the life cycle of a research project, the CRC provides quality oversight from initiating all staff under the CRC’s SOPs and quality management system, providing GCP training and risk assessment of our trials, through to monitoring and consultation through the maintenance of the study.



Monitoring UCD CRC Regulatory Team Clinical ensure that clinical trials are conducted, recorded and reported in accordance with protocol, Good Clinical Practice (GCP) and UCD CRC standard operating procedures (SOPs) undertaking both external and internal clinical trials. Taking a Risk-Based approach, the CRA drives the finalisation of the monitoring plan for all UCD sponsored studies involving key stakeholders such as the Chief Investigator, Quality & Regulatory Affairs Manager and appropriate study staff.

Information Systems Clinical Data

Management The CRC supports research staff with collection of high-quality, reliable data throughout each clinical research project. Assistance is provided with development of clinical trial protocols, advice on data protection issues, efficient data collection and

CRF design, and establishment of electronic databases to ensure the right data is collected for each study protocol.

Pharmacovigilance CRC staff provide pharmacovigilance support for safety monitoring activities and processing of serious adverse events (SAEs) that occur in UCD-sponsored regulated clinical trials. Two staff members have completed the European Medicines Agency face-to-face Eudravigilance training.

- ▶ A cohort of professional and experienced research scientists, data managers and clinical research nurses that can ensure studies are conducted and managed to the highest levels of quality

Research Supports

The UCD CRC has a significant track record in supporting both Investigator-initiated and industry-initiated clinical research projects. The UCD CRC supports clinical research studies at all phases of activity. Recognising that all clinical trials have particular support requirements, a tiered service offering is available to meet the needs of the investigator.

These supports are an environment which is

- ▶ Supportive to clinicians to undertake hypothesis-driven investigator-led clinical studies

- ▶ Recognised by regulators, pharmaceutical companies and clinical research organisations as being professional and of the highest quality

- ▶ Attractive to patients and encourages participation in clinical research and trials by providing excellent clinical care and access to latest clinical interventions

- ▶ Managed under a dedicated and approved quality policy



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Financial Review

The allocation from the HSE amounted to €282.3 million in 2018 (2017: €254.4 million) which was an 11% increase from the amount received in 2017.

Operating costs net of other income amounted to €284.8 million for the financial year (2017: €265.2 million) which was an increase of 7% over 2017 reflecting increases in pay arising mainly from national pay awards and new service developments and increased non-pay costs.

The net deficit for the financial year was €1.05 million (2017: deficit of €9.6 million).

The company had a cumulative deficit of €21.7 million as at 31 December 2018. The outturn for 2018 resulted in a deficit of €1.05 million leading to a total accumulated deficit as at 31 December 2018 of €21.7 million. In December 2018 extra budget allocation of €18.95m was received of which €6.022m was allocated to income shortfall leaving MMUH with a 'blessable deficit' of €1.691m in the year for private patient income. Private income is a national issue being addressed by the HSE and DoH with the private health insurers.

The clinical value of the company's inpatient and day case activity for 2018 was €7.8 million

higher than the target set by HSE and under the Activity Based Funding (ABF)

Benchmarking national comparison the MMUH would gain a positive benchmarking adjustment of €8.65 million when compared to the other hospitals in the benchmarking process. This benchmarking process awards efficiency levels across the hospitals in the ABF model.

The allocation for 2019 as notified by the HSE amounts to €290.3 million (2018: €283.7 million). This represents a 2.3% increase. Based on the allocation received the Hospital is projecting a deficit for the year of €9.8m.

The projected deficit for 2019 €9.8m is subject to

► Future claims recoupment by private health insurers being managed at a national level and not reflected as a corporate deficit in the company.

► The challenge that this revenue allocation presents to management for 2019 is to maintain activity at current levels, and to achieve a breakeven position.

In correspondence received in April 2018 the HSE outline *that hospitals are not expected to*

take service reducing measures to address first charges arising from prior years. The HSE is aware that some hospitals may have historical deficits (pre 2017), these are not addressed in the Service Plan 2018.

During 2018 the Hospital treated 26,839 inpatients and 68,110 day cases significantly in excess of the HSE Service Level Agreement. 236,852 bed days were utilised and 221,970 patients were seen at the Outpatient Department. 82,350 patients were treated in the Emergency Department, in the Smithfield Rapid Injuries clinic and in the Eye Emergency Department.

Activity increases sustained by the Hospital in 2018 included a 5.1% increase in ED attendances (excluding Eye Casualty and Smithfield Rapid Injuries clinic) which translated into a further 2% increase in admissions on previous year to the Hospital.

The Heart/Lung Transplant Programme has remained strong in 2018 with 42 transplants in total performed and a further 3 transplant patients were discharged in 2019.

Improvement and Innovation

▶ During 2018 the Agresso financial system was upgraded adding new and improved functionality to all modules within the system.

▶ As part of the system upgrade in 2018 a new Fixed Asset Register module was developed enabling recording of assets, their useful life, depreciation etc. Fixed assets recorded in the 2018 balance sheet amounts to €15.5m.

▶ Work continued in partnership with H.R. Department in development of the budget module which uses post numbering as its basis, bringing clarity and visibility to resource usage.

▶ Work has commenced on delivering a series of new reports through dashboard development.

▶ Continuing collaboration with the Operations Managers within the Directorates in production of financial reports that will aid informed decision making.

▶ Under the Hospital's Strategic Plan work has commenced on rolling out Goal 4 'Ensure effective data capture and reporting (clinical audit/HIPE/ABF).

MATER MISERICORDIAE UNIVERSITY HOSPITAL

**STATEMENT OF INCOME AND RETAINED EARNINGS
FOR THE FINANCIAL YEAR ENDED 31 DECEMBER 2018**

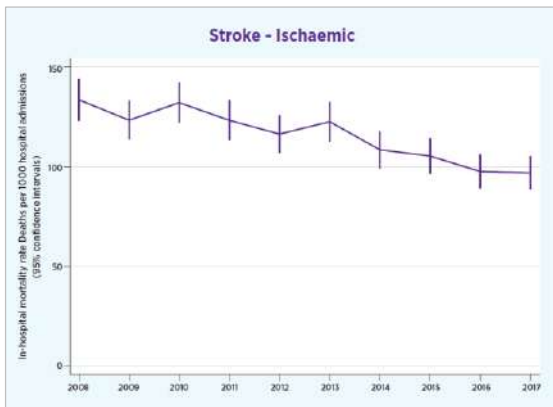
	2018	2017
	€'000	€'000
Turnover		
Revenue grants	282,398	254,378
Other income	47,767	49,715
Capital grant amortisation	3,392	4,044
	333,557	308,137
Costs		
Staff costs	(219,278)	(207,695)
Non pay costs	(111,914)	(106,013)
Depreciation	(3,392)	(4,044)
	(334,584)	(317,752)
Operating (deficit) / surplus	(1,027)	(9,615)
Exceptional item	-	-
Interest receivable and similar income	-	8
Interest payable and similar charges	(24)	(28)
Deficit on ordinary activities before taxation	(1,051)	(9,635)
Taxation	-	-
DEFICIT FOR THE FINANCIAL YEAR	(1,051)	(9,635)
Retained deficit at the beginning of the reporting period	(20,647)	(11,012)
Retained deficit at the end of the reporting period	(21,698)	(20,647)

MATER MISERICORDIAE UNIVERSITY HOSPITAL

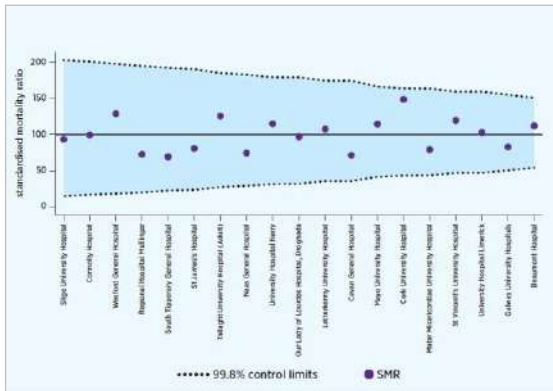
BALANCE SHEET AS AT 31 DECEMBER 2018

	2018	2017
	€'000	€'000
Fixed Assets		
Tangible assets	15,551	16,301
Financial Assets	-	-
	15,551	16,301
Current Asset		
Debtor	25,778	34,712
Stocks	8,148	7,295
Cash at bank and in hand	58	85
	33,984	42,092
Creditors: Amounts falling due within one year		
Creditors	(42,231)	(49,038)
Bank loans and overdrafts	(13,450)	(13,700)
	(55,681)	(62,738)
Net current liabilities	(21,697)	(20,646)
Total assets less current liabilities	(6,146)	(4,345)
Capital grants	(15,551)	(16,301)
NET LIABILITIES	(21,697)	(20,646)
Financed by:		
Capital and reserves		
Called up share capital presented as equity	1	1
Retained deficit	(21,698)	(20,647)
SHAREHOLDER'S DEFICIT	(21,697)	(20,646)

Ischaemic Stroke

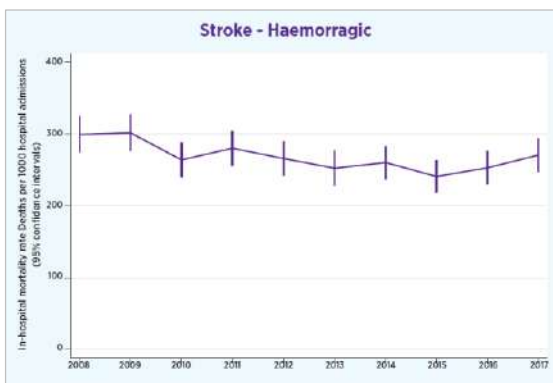


National In-hospital Mortality following admission with a principle diagnosis of Ischaemic Stroke



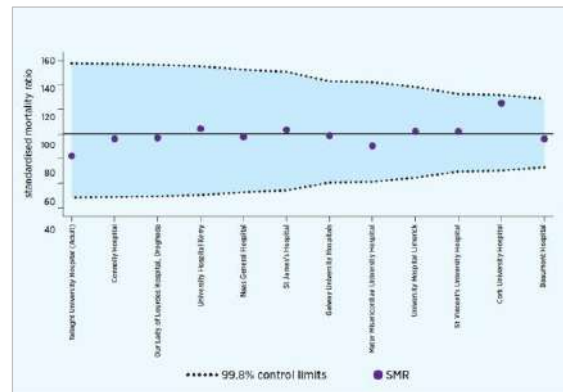
National In-hospital SMR following admission with a principle diagnosis of Ischaemic Stroke

Haemorrhagic Stroke



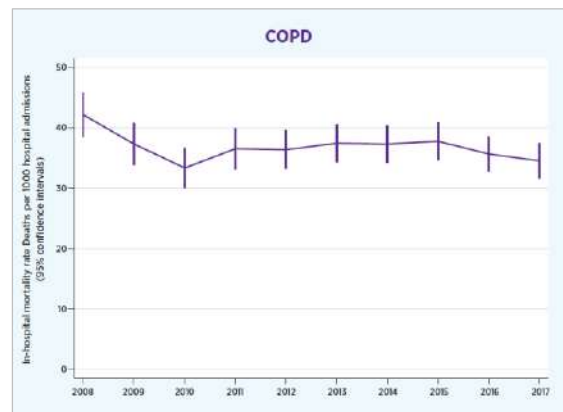
National In-hospital Mortality following admission with a principle diagnosis of

Haemorrhagic Stroke

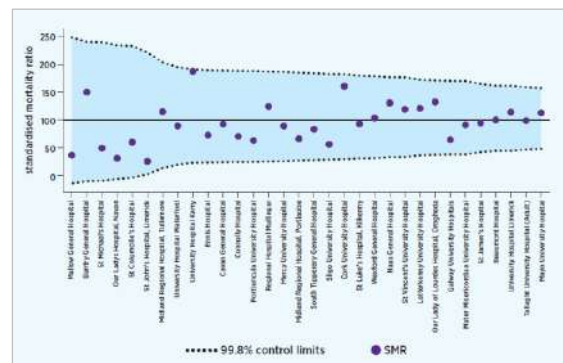


National In-hospital SMR following admission with a principle diagnosis of Haemorrhagic Stroke

COPD

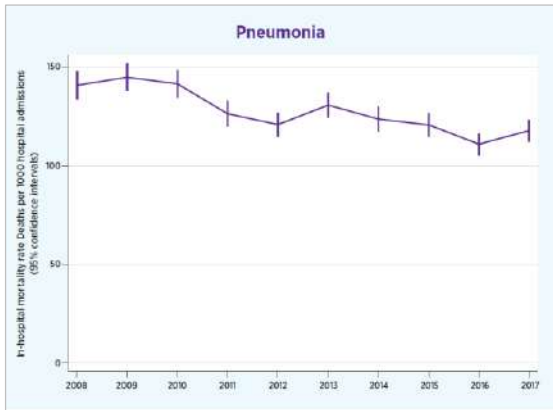


National In-hospital Mortality following admission with a principle diagnosis of COPD

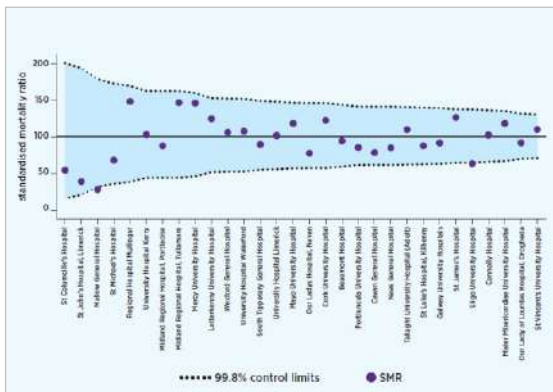


National In-hospital SMR following admission with a principle diagnosis of COPD

Pneumonia



National In-hospital Mortality following admission with a principle diagnosis of Pneumonia



National In-hospital SMR following admission with a principle diagnosis of Pneumonia



Appendix II

Clinical Trials Ireland: Open Cancer Trials at the Mater Hospital

Area/ Name	Patient Type	Location	Principle Investigator
Breast Cancer – IMpassion 03	Triple negative early staged breast cancer	Beaumont Hospital, Mater Misericordiae University Hospital	Prof Michaela Higgins (Mater Misericordiae University Hospital)
Breast Cancer - PEARL	Postmenopausal women with HR+/HER2- metastatic breast cancer who were resistant to non-steroidal aromatase inhibitors	Beaumont Hospital, Bon Secours Cork, Cork University Hospital, St James's Hospital, St Vincent's University Hospital, University Hospital Galway, and Mater Misericordiae University Hospital	Dr Janice Walsh (St Vincent's University Hospital)
Lung Cancer – ROCHE M029872	Treatment-naïve patients with locally advanced or metastatic NSCLC who are unsuitable for platinum-containing therapy due to poor performance status	St James's Hospital, University Hospital Limerick, and Mater Misericordiae University Hospital	Prof Michaela Higgins (Mater Misericordiae University Hospital)
Lung Cancer – MK3475-091 PEARLS	Early stage non-small cell lung cancer with no residual disease after surgery	Cork University Hospital, St James's Hospital, St Vincent's University Hospital, University Hospital Limerick, University Hospital Waterford, and Mater Misericordiae University Hospital	Dr Linda Croate (University Hospital Limerick)
Genitourinary Cancer – C039303/IPATential 150	Patients with Metastatic castrate-resistant prostate cancer	Cork University Hospital, Tallaght University Hospital, Mater Misericordiae University Hospital , and Mater Private Hospital	Dr Richard Bambury (Cork University Hospital)
Genitourinary Cancer – IPCOR	Newly diagnosed prostate cancer patients	Beaumont Hospital, Cork University Hospital, Letterkenny University Hospital, Crumlin Children's Hospital, Sligo University Hospital, St James's Hospital, Tallaght University Hospital, University Hospital Galway, and Mater Misericordiae University Hospital	Dr David Galvin (Mater Misericordiae University Hospital)

Genitourinary Cancer - iProspect	Patients with advanced prostate cancer	Beacon Hospital, Beaumont Hospital, Cork University Hospital, Sligo University Hospital, St James's Hospital, Tallaght University Hospital, St Vincents University Hospital, University Hospital Galway, University Hospital Waterford, and Mater Misericordiae University Hospital	Prof Ray McDermott (St Vincent's University Hospital)
Gastrointestinal – STRATEGIC 1	This study is open to men and women over 18 years of age with confirmed colorectal cancer which has spread to other parts of the body (metastatic) for whom surgery is not a viable treatment option.	Bon Secours Cork, Cork University Hospital, St James's Hospital, Tallaght University Hospital, St Vincents University Hospital, University Hospital Galway, University Hospital Waterford, Mater Misericordiae University Hospital , and Mater Private Hospital	Dr Greg Leonard (University Hospital Galway)
Gastrointestinal – CRAC Plasma Biomarker	All patients suspected to have stage 2/3 colorectal cancer and are planned to have surgical treatment.	Beacon Hospital, Beaumont Hospital, Bon Secours Cork, Letterkenny University Hospital, Sligo University Hospital, St James's Hospital, Tallaght University Hospital, St Vincents University Hospital, University Hospital Galway, University Hospital Waterford, and Mater Misericordiae University Hospital	Prof Ray McDermott (St Vincent's University Hospital)
Gynaecological Cancer – The tBRCA Study	Patients diagnosed with high grade serous or endometrioid ovarian, fallopian tube or primary peritoneal cancer are eligible for this study	Bon Secours Cork, Cork University Hospital, St James's Hospital, University Hospital Limerick, Mater Misericordiae University Hospital , and Mater Private Hospital	Prof Bryan Hennessy (Beaumont Hospital)
Gynaecological Cancer – ICON8B	Patients with newly diagnosed histologically confirmed high risk advanced (stage III-IV) ovarian, fallopian tube and primary peritoneal cancer	Bon Secours Cork, St James's Hospital, University Hospital Galway, University Hospital Waterford, Mater Misericordiae University Hospital , and Mater Private Hospital	Dr Dearbhaile O'Donnell (St James' Hospital)
Lymphoma & Blood Cancers – CLL13	Chronic Lymphocytic Leukaemia (CLL) without del17p or TP53 mutation who have not been treated	Beaumont Hospital, Cork University Hospital, St James's Hospital, University Hospital Galway, University Hospital Waterford, and Mater Misericordiae University Hospital	Prof Patrick Thornton (Beaumont Hospital)
Lymphoma & Blood Cancers – CHRONOS 04	Indolent (grow slowly) Non-Hodgkin's Lymphoma that have returned after previous treatment	Cork University Hospital and Mater Misericordiae University Hospital	Dr Anne Fortune (Mater Misericordiae University Hospital)
Lymphoma & Blood Cancers – CHRONOS 03	Patients with indolent B-cell non-Hodgkin's lymphoma that has returned	St James's Hospital, St Vincent's University Hospital, University Hospital Galway, and Mater Misericordiae University Hospital	Prof Elizabeth Vandenberghe (St James' Hospital)

Multi-Cancer – Add Aspirin	Patients who have undergone potentially curative treatment (surgery or other radical treatment) for early stage cancer of the breast, stomach, oesophagus (food pipe), colon, rectum or prostate	Beaumont Hospital, Bon Secours Cork, Cork University Hospital, Sligo University Hospital, Tallaght University Hospital, St Vincent’s University Hospital, University Hospital Limerick, University Hospital Galway, Mater Misericordiae University Hospital , and Mater Private Hospital	Dr Greg Leonard (University Hospital Galway)
Multi-Cancer – SNP Study	Eligible patients for this study would have; Stage 4 colorectal cancer expressing a mutated gene known as KRAS Or Stage 4 non-small cell lung cancer expressing a protein known as epidermal growth factor receptor (EGFR).	Beaumont Hospital, Bon Secours Cork, Cork University Hospital, Sligo University Hospital, Tallaght University Hospital, University Hospital Galway, University Hospital Waterford, and Mater Misericordiae University Hospital	Dr Michael Martin (Sligo University Hospital)

